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Number 3.

MARCH, 1895.

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20 Cents per Copy

TEXTILE WORLD

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The April Issue will contain the Directory of the Textile Establishments in the States of New York, New Jersey and Pennsylvania, illustrated by specially engraved Maps showing the location of the cities and towns where there are textile mills. See page 26.

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Patent Combination Rolls

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Established 1820. Incorporated 1889.

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Finishing Machinery

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Of Various Patterns.

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Wet and Dry Twisters,
Looms,

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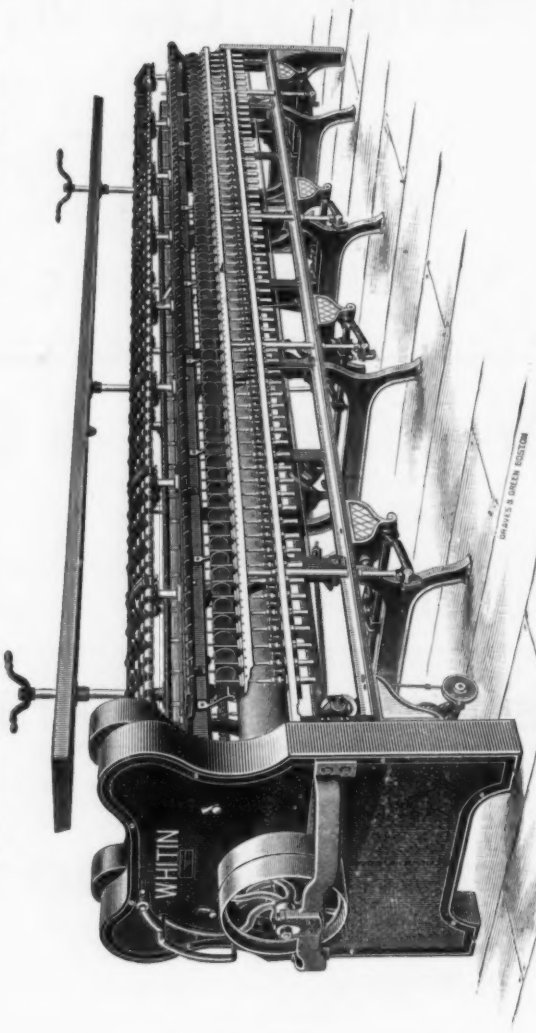

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BUILDERS OF

COTTON MACHINERY,

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Are economizing to a marked extent by adopting larger rings and larger traverse on their frames.
We make a special business of changing over frames, and manufacture the necessary rings and separators. With this class of work the

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Our Twisters are simply unequalled. They fairly bristle with new ideas.

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Looms:—

Nothing but the sense of duty prompts us to refer to them. It is a grave question whether we should invite more orders under the circumstances. A success may prove embarassing when it comes so suddenly.

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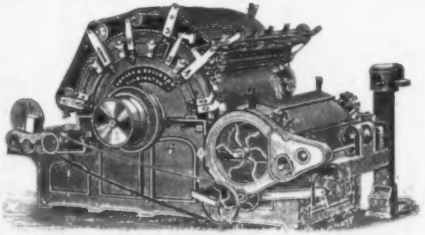

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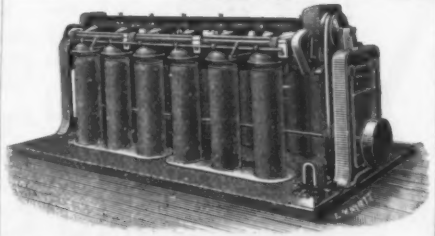

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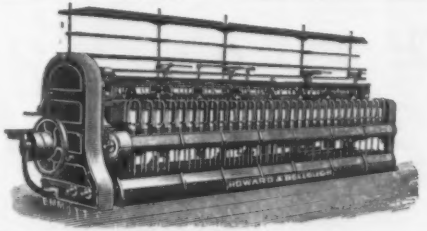

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TAUNTON,
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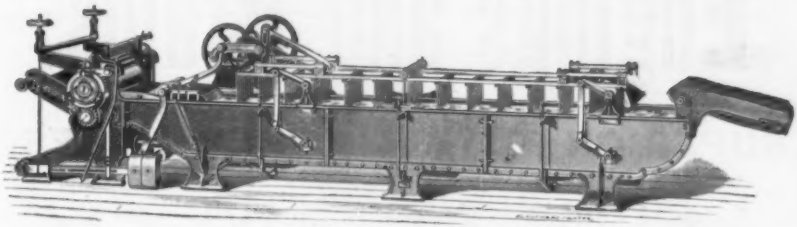

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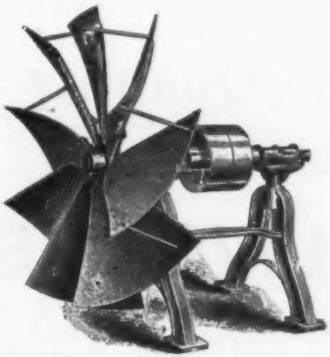

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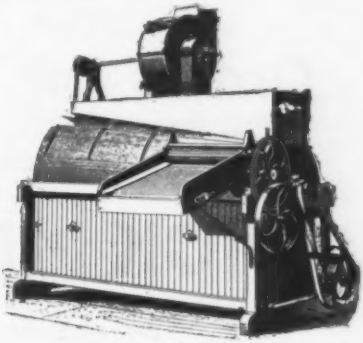
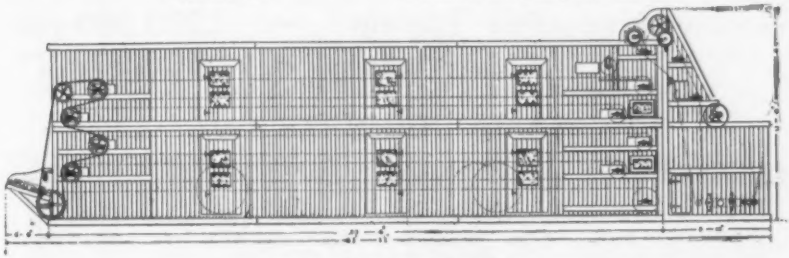


IMPROVED CONE DUSTER.
Exterior View Right-Hand Machine with Fan.



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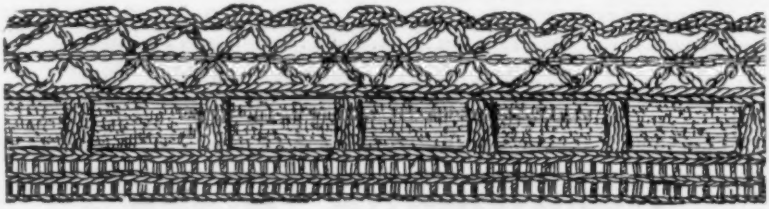

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Eighteen Ninety Four.
18-90-4
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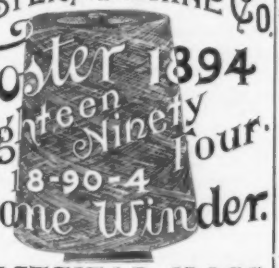

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Our machines will wind Cones as well as Tubes.
Cones and Tubes can be wound at the same time.
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Therefore it is a saving in FIRST COST to buy our Winders, and a continual saving of the floor space of one machine and the labor required to run it.

Besides, if saving of power is any object, that item alone is worth considering.

FOSTER MACHINE CO.,
WESTFIELD, MASS.

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BUYERS' INDEX.

Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Alphabetical Index to Advertisements follows this Classified List.

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Ferguson, John W, Patterson, N. J.

Automatic Boiler Feeds.
Cornell, F. H. Co, 461 W. 14th St, New York.
D'Este & Seeley Co, 29 Haverhill St, Boston.

Balling Machine.
Torrance Mfg. Co, 18 Davis St, E. Newark, N. J.

Banding.
Hudson, John R, Manayunk, Pa.

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Barlow, John W, Lawrence, Mass.

Belting.
Alexander Bros., 410 No. 3d St., Phila., Pa.
Danforth Belting Co, 221 Chestnut St, Phila, Pa.
Fell, Geo. & Son, Bolton, England.
Rhoads, J E, & Sons, 239 Market St, Phila, Pa.
See also Mill Supplies.

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Danforth Belting Co, 221 Chestnut St, Philadel hia, Pa.
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Baldwin, James, Co, Manchester, N. H.
Vermont Spool & Bobbin Co, Burlington, Vt.

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Imperial Chemical Co, 432 Market St, Phila, Pa.
Lord, G. W, 316 Union St, Phila, Pa.

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Boxes, Wooden.
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Burr Pickers.
Sargent's, C. G, Sons, Graniteville, Mass.

Card Clothing.
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Radey, Cunningham & Co, Phila, Pa.

Card Cutters.
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New Bedford Copper Co, New Bedford, Mass.
See also Dyeing, Bleaching Machinery, etc.

Carpet Machinery.
Altemus, W. W, & Son, 2816 N. 4th St, Phila, Pa.
Crompton Loom Works, Worcester, Mass.
Furbush, M. A, & Son, Machine Co, Phila, Pa.

Chemical Laboratory.
Genth, F. A.

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Bausch, C. H, & Sons, Holyoke, Mass.

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Foster Machine Co, Westfield, Mass.

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New Bedford Copper Co, New Bedford, Mass.

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Brabender, Chas, & Son, Paterson, N. J.
Oat, Jos. & Sons, 232 Quarry St, Phila, Pa.

Cotton.
Barry, Thayer & Co, 32 India St, Boston, Mass.
Blaisdell, S, Jr, Co, Chicopee, Mass.
Capelle, Herman, cor. Leonard St. and W. Broadway, N. Y.

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Atherton Machine Co, Lowell, Mass.
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Draper, Geo, & Sons, Hopedale, Mass.
Howard & Bullough American Machine Co, 281 Congress St, Boston, Mass.
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Mason Machine Wks, Taunton, Mass.
Pettee Machine Wks, Newton Upper Falls, Mass.
Providence Machine Co, Providence, R. I.
Whitin Machine Wks, Whitinsville, Mass.

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Atherton Machine Co, Lowell, Mass.
Howard & Bullough American Machine Co, 281 Congress St, Boston, Mass.

Damper Regulators.
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Philadelphia Textile Machinery Co, Philadelphia, Pa.
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Dusters.
See Wool and Waste Dusters.

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Dyeing, Bleaching and Finishing.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
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Kensington Dye Works, Kensington, Pa.
Perseverance Dyeing Co, Woonsocket, R. I.
Providence Dye Works, Kensington, Pa.

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Hill, Edward's, Son & Co, 25 Cedar St, N. Y.
Holliday, Read & Sons, Ltd, 7 Platt St, N. Y.
Horstall, Jonathan, 216 Chestnut St, Phila, Pa.
Howe & French, 107 Milk St, Boston, Mass.
Jaeck Bros, J, 67 Wythe Ave, Brooklyn, N. Y.
Johnson, Chas. A, & Co, 14 Dey St, N. Y.
Karcher, Ph. H, & Co, 14 Cedar St, N. Y.
Keller, John J, & Co, 104 Murray St, N. Y.
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Klipstein, A, & Co, 122 Pearl St, N. Y.
Matheson, W. J, & Co, 178 Front St, N. Y.
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Naumkeag Dye Co, Salem, Mass.
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Harras, E, 606 E. 152 St, N. Y.
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Kensington Dye Works, Kensington, Pa.
Mason, The R. D, Co, Pawtucket, R. I.
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Pawtucket Dyeing & Bleaching Co, Pawtucket, R. I.
Perseverance Dyeing Co, Woonsocket, R. I.
Providence Dye Wks, Kensington, Pa.

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Graves Elevator Co, Rochester, N. Y.
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General Electric Co, Schenectady, N. Y. Offices in all large cities.

Engineers, Mechanical.

Ferguson, John W, Paterson, N. J.
Jarvis Engineering Co, Oliver St, Boston, Mass.
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Russell, Albert C, 38 Pearl St, Boston, Mass.
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Chattanooga Land Co, 62 Times Bldg, Chattanooga, Tenn.
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Bartholomew, J. B, Topeka, Kas.

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Hine & Robertson Co, 67 Courtlandt St, N. Y.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Whitlock Coil Pipe Co, 67 South St, Elmwood, Conn.

Feed Water Pumps.

Phœnix Iron Foundry, Providence, R. I.

Finishing Machinery.

See Dyeing, Drying, Bleaching and Finishing.

Fire Hose.

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Fire Pails.

Lincoln, Levi, Worcester, Mass.

Fluted Rolls.

Cohoes Foundry & Machine Co, Cohoes, N Y
Thurston, A. G, & Son, Box 528, Fall River. Mass.

Flier Pressers.

Thurston, A. G, & Son, Box 528 Fall River, Mass.

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Gessner, Ernst, 5136 Viola St, Phila, Pa.

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Gear Cutting Machine.

Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E, Co, New London, Conn.

Heating.

See Ventilating.

Hosiery Boards.

Pearson, J. T, Kensington, Pa.

Hydro Extractors.

Schofield, Geo. L, 123 N. Front St, Phila, Pa.

Index.

Burr Index Co, 336 Asylum St, Hartford, Conn.

Indicators for Engines.

Hine & Robertson Co, 67 Courtlandt St, N. Y.

Jute Goods, Burlaps and Jute Yarns.

Wilmington Mills Mfg. Co, Wilmington, Del.

Knit Goods Brushers.

Franz & Pope Knitting Machine Co, Bucyrus, O.
Jones, Lewis, Bristol, Pa.

Knit Goods Edgings, Trimmings, etc.

Cheney Bros, Silk Goods, 479 Broome St, N. Y.
Friedberger, S, Edgings, Germantown, Phila, Pa.
Hepner & Howitz, Lacings, 84 Leonard St, N. Y.

Knit Goods Finishing Machines, Crochet, Etc.

Champion Sewing Machine Co, 1819 N. 5th St, Phila, Pa.
Merrow Machine Co, The, Hartford, Conn.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.

Knit Goods Ravellers.

Traver, A. L. Mellenville, N. Y.

Knitting Machine Cylinders.

Ashman, Stephen A, 3 Fetter Lane, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Stafford, W, & Co, Little Falls, N. Y.
Stanton & Lewis, 318 Branch St, Phila, Pa.

Knitting Machinery.

Branson Machine Co, 506 St. John St, Phila, Pa.

Brinton, Denny & Co, 213 Race St, Phila, Pa.
Campbell & Clute, Cohoes, N. Y.
Champion Sewing Machine Co, 1819 N Fifth St, Phila, Pa.
Crane Mfg. Co, Lakeport, N. H.
Franz & Pope Knitting Machine Co, Bucyrus, O.
Hepworth & Co, Lehigh Ave. and Mascher St, Phila, Pa.
Jones, Lewis, Bristol, Pa.
Keystone Knitting Machine Mfg. Co, 1716 No. Fifth St, Phila, Pa.
Lamb Mfg. Co, Chicopee Falls, Mass.
Leighton Machine Co, Manchester, N. H.
National Automatic Knitter Co, 728 Cherry St, Phila, Pa.
Novelty Knitting Machine Co, Lowell, Ms.
Nye & Tredick, 606 Arch St, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Payne, Geo. W, & Co, Pawtucket, R. I. (Winding and spooling.)
Pepper Mfg. Co, Lakeport, N. H.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.
Stafford, W, & Co, Little Falls, N. Y.
Taylor, James, 835 Arch St, Phila, Pa.

Knitting Needles.

Ames, David J, Philmont, N. Y.
Breedon, Wm, & Son, Amsterdam, N. Y.
Corey, Wm, Co, Manchester, N. H.
Ives, Loyal T, New Brunswick, N. J.
Lydall, H, & Foulds, Manchester, N. H.
Star Needle Co, New Britain, Conn.
Treat, Orion, Manchester Green, Conn.
Wardwell Needle Co, Lakeport, N. H.

Laboratory Outfits.

Bullock & Crenshaw, 528 Arch St, Phila, Pa.

Lace Leather.

Rhoads, J. E, & Son, 239 Market St, Phila, Pa.

Lingoes.

Miller Mfg. Co, 16 Indiana Ave, Phila, Pa

Looms.

Crompton Loom Works, Worcester, Mass.
Draper, Geo. & Sons, Hopedale, Mass.
Furbush, M. A, & Son Co, Phila, Pa.
Gilbert Loom Co, Worcester, Mass.
Insinger & Co, 15 E. Canal St, Phila, Pa.
Kilburn, Lincoln & Co, Fall River, Mass.
Mason Machine Works, Taunton, Mass.
Whitin Machine Works, Whitinsville, Ms

Loom Picker Manufacturers

Barlow, John W, Spicket Mill, Lawrence Mass.

Lubricators.

Dixon, Jos, Crucible Co, Jersey City, N. J.
Faul, W. J, 120 Liberty St, N. Y.

Lumpers.

Gerry, George, & Son, Athol, Mass.

Machinery Dealers.

Clark, Jeremiah, Lowell, Mass.
Schofield, Geo. L, 123 N. Front St, Phila, Pa.

Machinery Wipers.

Am. Silk Mfg. Co, 311 Walnut St, Phila, Pa.

Machinists' Tools.

Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E. Co, New London, Conn.

Measuring and Folding Machines.

Elliott & Hall, 54½ Harmon St, Worcester, Mass.

Mails.

Walder, J, Paterson, N. J.

Mill Builders and Engineers.

Ferguson, John W, Paterson, N. J.
Gray, Arthur F, Exchange Bldg, Boston.

Mill Supplies.

American Supply Co, Providence, R. I.
Buckley's, Benj. Son, Gun Mill, Paterson, N. J.
Covel & Osborn, Fall River, Mass.
Hill, Jas, Mfg. Co, Providence, R. I.
Miller Mfg. Co, 16 Indiana Ave, Phila, Pa.
Thurston, A. G, & Son, Fall River, Mass.

Napping Machines.

American Napping Machine Co, Williamstown, Mass.
Parks & Woolson Machine Co, Springfield, Vt.

Oilers.

Williams, H. A, Mfg. Co, 336 Congress St, Boston.

Oilless Bearings.

N. American Metalline Co, 62 W. Ave. and 3rd St, Long Island City, N. Y.

Pantagraphs, Engraving Machinery, Etc.

Hope, John, & Sons Eng. & Mfg. Co, Elmwood, Pronidence, R. I.

Paper Tubes for Cone Winders.

McCausland, J, 33 Canal St, Providence, R.I.

Patent Solicitors.

Crosby & Gregory, 31 School St, Boston, Mass.
Crossley, Arthur W, Exchange Bldg, Boston, Mass.
Gooch, Chas. J, Washington, D.C.
Miller, Jos. A, & Co, Butler Exchange, Providence, R. I.
Planta, E, 27 School St, Boston, Mass.
Weaver, E. C, 900 F St, Washington, D. C.
Wright, Brown & Quinby, Exchange, Bldg, Boston, Mass.

Pattern Cutter.

Gleason, A. H, Rockbottom, Mass.

Penstocks.

Dalrymple, Geo, Fair Haven, Vt.

Pianos and Organs.

Beethoven Piano-Organ Co, Washington, N. J.

Pneumatic Conveying.

See Ventilating.

Power Transmitting Machinery.

Cresson, Geo. V, Co, 1800 Allegheny Ave, Phila, Pa.
General Electric Co, Schenectady, N. Y. Offices in all large cities.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Kilburn, Lincoln & Co, Fall River, Mass.
Watson, A, 2136 Dickerson St, Phila, Pa.

Presses.

Crawford, J. J, & Son, Nashua, N. H.
Taylor, James, 835 Arch St, Phila, Pa.

Pressure Regulators for Steam and Water.

D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass.
Locke Regulator Co, Salem Mass.

Ramie Fibre.

Ramie Fibre Co, 120 N. 7th St, Phila, Pa.

Reed and Harness Manufacturers.

American Supply Co, Providence, R. I.
Huston, Wm, 46 Clifford St, Providence, R. I.
Loom Picker Co, Biddeford, Me.
Walder, J, Paterson, N. J.

Ribbons.

Cheney Bros, S. Manchester, Ct.
Friedberger, S, Germantown, Pa.

Roll Coverers.

Barlow, John W (worsted rolls), Lawrence, Mass.

Roller Skins.

Fell, Geo, & Son, Bolton, England.

Roofing, Steel and Tin.

Chattanooga Steel Roofing Co, Chattanooga, Tenn.

Roofing Tin.

Merchant & Co, Philadelphia.

Roving Cans and Sheet Metal Work for Mills.

Hill, Jas, Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave. Providence, R. I.

Rubbing Motion for Wool Cards.

Beswick & Kay, 25th and Callowhill Sts, Philadelphia.

Scales.
How, F. B, 216 Purchase St, Boston, Mass.
Trœmner, Henry, 710 Market St, Phila, Pa.

Separators.
D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass. (steam and grease).

Sewing Machines and Supplies.
Champion Sewing Machine Co, 1819 N. 5th St, Phila, Pa.
Frame, Gibbons, 2nd and Diamond Sts, Phila, Pa.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.

Sewing Machine Repairs.
Busch & Linn, 120 N. 7th St, Phila, Pa.

Shearing Machinery.
See Dyeing, Drying, Bleaching and Finishing.

Shell Rolls.
Cohoes Foundry & Mach. Co, Cohoes, N. Y.
Thurston, A. G, & Son, Box 528, Fall River, Mass.

Singe Plates.
New Bedford Copper Co, New Bedford, Ms.

Soaps.
Allison Bros, Middletown, Ct.
American Soap & Washolene Co, Cohoes, N. Y.
Camden & Phila. Soap Co, Camden, N. J.
Draper, J. O, & Co, Pawtucket, R. I.

Spindles.
Buckley, Benj's, Sons, Gun Mill, Paterson, N. J.
Draper, Geo, & Sons, Hopedale, Mass.
Providence Machine Co, Providence, R. I.
Whitin Machine Wks, Whitinsville, Mass.

Spinning Cylinders.
Hill, Jas, Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Spinning Frames.
See Cotton Machinery.

Spinning Rings.
Draper, Geo, & Sons, Hopedale, Mass.
Whitinsville Spinning Ring Co, Whitinsville, Mass.

Spinning Tubes.
Buckley, Benj's. Son, Gun Mill, Paterson, N. J.
Providence Machine Co, Providence, R. I.

Spooling Machinery.
Payne, Geo. W, & Co, Pawtucket, R. I.

Steam Boilers.
Frick Company, Waynesboro, Pa.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Sargent, J. Bradford, 8 Oliver St, Boston.
Whitehill-Corliss & Pictet Ice Machine Co, Newburgh, N. Y.

Steam Boiler and Pipe Covering.
Keasbey & Mattison Co, Ambler, Pa.
N Y. Fire Proof Covering Co, 128 Liberty St, N. Y.

Steam Boiler Insurance.
Hartford Steam Boiler Inspection & Insurance Co, Hartford, Conn.

Steam Damper Regulators.
D'Este & Seely Co, 29 Haverill St, Boston Mass.
Locke Regulator Co, Salem, Mass.

Steam Engines.
Frick Co, Waynesboro, Pa.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Sargent, J. Bradford, 8 Oliver St, Boston, Mass.
Whitehill Corliss & Pictet Ice Machine Co, Newburgh, N. Y.

Steam Kettles.
Walker & Pratt Mfg. Co, 31-35 Union St Boston, Mass.

Steam Specialties.
Hine & Robertson Co, 67 Courtlandt St, N. Y.
Jarvis Engineering Co, Oliver St, Boston, Mass.

Steam Traps.
D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass. (return float and expansion).
Locke Regulator Co, Salem, Mass.

Steel Castings.
Chester Steel Castings Co, 407 Liberty St Phila, Pa.

Steel and Iron Roofing.
Chattanooga Steel Roofing Co, Chattanooga, Tenn.

Stop and Speed Limit Attachments for Engines.
Monarch Engine Stop Co, 34 Maiden Lane, N. Y.

Tanks, Tubs and Vats.
American Stave & Cooperage Co, New York and Boston.
Brabender, Chas, & Son, Paterson, N. J.
Burkhardt's, Geo. J., Sons, 2831 N. Broad St, Phila, Pa.
Burkhardt, Wm. H, & Co, 240 Chestnut St, Phila, Pa.
Corcoran, A. J, 11 John St, N. Y.
Hall, Amos H, No. 2nd above Cambria, Phila, Pa.
Oat, Jos, & Sons, 233 Quarry St, Phila, Pa.
Woolford, George, 2240 No. 9th St, Phila, Pa.

Tank Bolt Protector.
Burkhardt, Wm. H, & Co, 240 Chestnut St, Phila, Pa.

Tapes and Braids.
Fleming & Chapin, 215 Church St, Phila, Pa.
Kenyon, John J, Pawtucket, R. I.
Perseverance Mills, 2632-40 Mascher St, Phila, Pa.

Teasels.
Kellogg, Thos. C, Skaneateles, N. Y.
Kellogg, Wm. W, Skaneateles, N. Y.
McLaughlin Bros, Skaneateles Falls, N. Y.

Temperature Regulators.
D'Este & Seeley Co, 29 Haverhill St, Boston.

Tentering Machines.
See Dyeing, Bleaching Machinery, Etc.

Tension Pulleys.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Testing Machines for Yarn and Cloth.
How, F. B, 216 Purchase St, Boston, Mass.

Textile Machinery Dealers.
Clark, Jeremiah, Lowell, Mass.
Schofield, George, Phila, Pa.

Valves.
D'Este & Seeley Co, 29 Haverill St, Boston, Mass.
Locke Regulator Co, Salem, Mass.

Ventilating Apparatus.
Berry, A. Hun, 23 W. 1st St, Boston, Mass.
Boston Blower Co, Boston, Mass.
New England Heating & Ventilating Co, Providence, R. I.
Philadelphia Textile Machinery Co, Hancock St, above Lehigh Ave, Phila, Pa.
Sargent's, C. G, Sons, Graniteville, Mass.
Sturtevant, B. F. Co, 34 Oliver St, Boston, Mass.

Warp Compressing Machine.
Worcester Warp Compressing Machine Co Worcester, Mass.

Watchman's Clock.
Imhauser, E, 206 Broadway, N. Y.
Pneumatic Watchman Check Co, Columbus, O.

Water Wheels.
Burnham Bros, York, Pa.
Christiana Machine Co, Christiana, Pa.
Swain Turbine Mfg. Co, Lowell, Mass.

Water Wheel Governors.
Cohoes Foundry & Machine Co, Cohoes N. Y.

Winders. (Cone.)
Foster Machine Co, Westfield, Mass.

Winders. (Hosiery.)

Foster Machine Co, Westfield, Mass.
Payne, Geo. W. & Co, Pawtucket, R. I.

Wool.

Webb, Chas. J. & Co, 156 N. Front St. Phila, Pa.

Wool Combs.

Tonwsend, Thos, Manchester, Conn.

Wool Combing Machinery.

Crompton Loom Works, Worcester, Mass.

Wool and Waste Dusters.

Gerry, Geo, & Son, Athol, Mass.
Stillman-Rich Machine Co, Westerly, R. I.

Wool Duster.

Sargent's, C. G, Sons, Graniteville, Mass.

Woolen Machinery.

Altemus, W. W, & Co, 2816 N. 4th St, Phila, Pa.
Bausch, C. H, & Sons, Holyoke, Mass.
Davis & Furber Machine Co, N. Andover Depot, Mass.
Furbush, M. A. & Son Machine Co, Phila, Pa.
Gessner, Ernst, 5136 Viola St, Phila, Pa.
Insinger & Co, 15 E. Canal St, Phil'a, Pa.
Parker, J. B, Machine Co, Clinton, Mass.
Sargent's, C. G, Sons, Graniteville, Mass.

Wool, Hair and Noils.

Fowles & Co, 102 Church St, Phila.
Webb, Chas. J, & Co, 156 N. Front St, Phila, Pa.

Wool Washers.

Sargent's, C. G, Sons, Graniteville, Mass.

Yarns.

Carpet Yarns.

Wilmington Mills Mfg. Co, Wilmington, Del.

Colored Cotton Yarns.

Hadley Co, Holyoke, Mass.
Montgomery, J. R Co, Windsor Locks, Ct.
Sanford Spinning Co. Fall River, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y
Tucker & Cook Mfg. Co, Conway, Mass.

Cotton Warps and Yarns.

Abegg & Rusch, 92 Grand St, N. Y.
Arkwright, Sir Rich, & Co, Ltd, 69 Mercer St, New York City.
Bale, Stuart & Co, 51 Green St, N. Y.
Blythe, Richard A, 114 Chestnut St, Phila, Pa.
Buckingham & Paulson, 83 Leonard St, New York City.
Chadwick Jas, & Bro, 241 Chestnut St, Phila, Pa.
Clark, Wm, Co, Westerly, R. I.
Fleming & Chapin, 215 Church St, Phila, Pa.
Fox, Henry C, 45 Strawberry St, Phila, Pa.
Germantown Spinning Co, Germantown, Pa.
Globe Yarn Mills, Fall River, Mass.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg. Co, Pawtucket, R I.
Hadley Co, Holyoke, Mass.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Hawes, O. S, & Bro, Fall River, Mass.
Howland Mills, New Bedford, Mass.
Kerr Thread Co, Fall River, Mass.
King, Alex, & Co, 54 Leonard St, New York City.
Lane, J. H, & Co, N Y, Boston and Chicago
Littlefield Mfg. Co, Pawtucket, R. I.
Mitchell, Jas. E, & Co, Boston and Phila, Pa.
New Bedford Mfg. Co, New Bedford, Mass.
Orswell Mills. Fitchburg, Mass.
Sampson, O. H, & Co, 67 Chauncy St, Boston, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R I.
Tucker & Cook Mfg. Co, Conway, Mass.
Wilkesbarre Lace Mfg. Co, Wilkesbarre, Pa.
Whitman & Hagan, Providence, R. I.
White, James F, & Co, N. Y. and Phila, Pa.
Whittier Cotton Mills, Lowell, Mass.

Glazed Yarns.

Arkwright, Sir Rich, & Co, Ltd, 69 Mercer St, New York City.
Blodgett & Orswell, Pawtucket, R. I.
Chadwick, Jas, & Co, Jersey City, N. J.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y.
Malcolm Mills Co, Frankford, Pa.
Warren, W, Thread Works, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

Harness Twines.

Bale, Stuart & Co, 51 Greene St, New York
Chadwick, Jas, & Co, Jersey City, N. J.
Hadley Co, 95 Milk St, Boston, Mass.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y.
Moore, C, & Co, 12 S. 5th St, Phila, Pa.
Warren, W, Thread Works, Lowell, Mass.
Whittier Cotton Mills, Lowell, Mass.

Hosiery and Knitting Yarns.

Arkwright, Sir Rich, & Co, Ltd, 69 Mercer St, New York City.
Brown, Wilson H, & Bro, 240 Chestnut St, Phila, Pa.
Buckingham & Paulson, 83 Leonard St, New York City.
Chadwick, Jas, & Bro, 241 Chestnut St, Phila. Pa.
Clark, Wm, Co, Westerly, R. I.
Croll, Albert Twins, Boston, Mass.
Germantown Spinning Co, Germantown, Pa.
Globe Yarn Mills, Fall River, Mass.
Goodwill & Ashworth, Jamestown, N. Y.
Greaves, J. W, & Co, Industrial Trust Bldg, Providence, R. I.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Howland Mills, New Bedford, Mass.
Hyde, E. S, 223 Chestnut St, Phila, Pa.
Kerr Thread Co, Fall River, Mass.
Littlefield Mfg. Co, Pawtucket, R. I
New Bedford Mfg. Co, New Bedford, Mass.
Orswell Mills, Fitchburg, Mass.
Rockwell, E. M, Leominster, Mass
Sanford Spinning Co. Fall River, Mass.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R. I.
Warren, W, Thread Works, Lowell, Mass.
Wessendonck, Lorenz & Co, 44 Leonard St, New York.
Whitman & Hagan, Providence, R. I.
Whittier Cotton Mills, Lowell, Mass.
Wilkesbarre Lace Mfg. Co, Wilkesbarre, Pa.

Jute Yarns.

Lane, J. H, & Co, N. Y, Boston and Chicago
Wilmington Mills Mfg. Co, Wilmington, Del

Novelty Yarns, Tinsels, Silk Noils, Etc.

Cranston Worsted Mills, Bristol, R. I.
Greaves, J. W, & Co, Industrial Trust Bldg, Providence, R. I.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Malcolm Mills Co, 2 6 Chestnut St, Phila Pa.
Montgomery, J R, Co, Windsor Locks, Ct.
Sanford Spinning Co, Fall River, Mass.

Silk Yarns.

Bale, Stuart & Co, 51 Green St, N Y.
Cheney Bros, S. Manchester and Hartford Ct.
Griswold Worsted Co, 322 Chestnut St, Phila, Pa.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Hawes, O. S, & Bro, Fall River, Mass.
Ryle, Wm, & Co, 54 Howard St, N. Y.
Sauquoit Silk Mfg. Co, 76 Chauncy St, Boston, Mass.
Wamsley, Philip, & Co, 34 Greene St, N. Y.
Whiteside, James, 96 Spring St, N. Y.

Woolen and Merino Yarns.

Brown, Wilson H, & Bro, 240 Chestnut St, Phila, Pa.
Fleming, Geo. M, 35 Strawberry St, Phila, Pa.
Fox, Henry C, 45 Strawberry St, Phila, Pa.
Greaves, J W, & Co, Industrial Trust Bldg, Providence, R. I.

Guerin Spinning Co, 92 S. Main St, Woonsocket, R. I.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Hyde, E. S. 228 Chestnut St, Phila, Pa.
Johnston & Farie, 132 S. 3d St, Phila, Pa.
King, Alexander & Co, 54 Leonard St, N. Y.
Mitchell, Jas. E. & Co, Boston, Mass, and Phila, Pa.
Rockwell, Edward M, Leominster, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Wesendonck, Lorenz & Co, 44 Leonard St, New York.

Worsted Yarns.

Abegg & Rusch, 92 Grand St, N. Y.
Allegheny Worsted Mills, Phila, Pa.
Bale, Stuart & Co, 51 Green St, N. Y.
Cranston Worsted Mills, Bristol, R. I.
Croft, Howland, Sons & Co, Camden, N. J.
Fleming, Geo, M, 35 Strawberry St, Phila, Pa.
Fox, Henry C, 45 Strawberry St, Phila, Pa.
Goodwill, Ashworth, & Co, Jamestown, N. Y.
Greaves, J. W, & Co, Industrial Trust Bldg, Providence, R. I.
Griswold Worsted Co, 322 Chestnut St, Phila, Pa.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
King, Alexander & Co, 54 Leonard St, N. Y.
Providence Worsted Mills, Providence, R. I.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Washington Mills Company, Lawrence, Mass.
Wesendonck, Lorenz & Co 44 Leonard St, New York.
Whiteside, James, 66 Spring St, N. Y.
Whitman & Hagan, Providence, R. I.

Yarns, Threads, Etc.

Banding.

Heywood, M, & Co, Fall River, Mass.
Hudson, John R Manayunk, Pa.
Moore, C. & Co, 12 S. 5th St, Phila, Pa.
Warren, W, Thread Works, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

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D. Russell Brown

TEXTILE WORLD.

Vol. VIII. MARCH, 1895. No. 3.

GOVERNOR D. RUSSELL BROWN.

Governor D. Russell Brown, of Rhode Island, is one of the many Americans connected with textile industries who have achieved as great success in public life as in their chosen commercial pursuits. Gov. Brown, who is now serving his second term, after having received the largest vote ever cast for the chief officer of the state, is the head of the firm of Brown Bros. & Co., one of the largest mill supply establishments in the country.

Mr. Brown was born in Bolton, Ct., in 1848, his father being a farmer. Young Brown, having finished his course in the local schools, was sent to the academy in Manchester, and completed his education in Hartford. He then started as clerk in a Rockville hardware store, two years later becoming head salesman in a similar establishment in Hartford.

In 1870 Mr. Brown went to Providence, where he took charge of the mill supply store of Cyrus White. Soon after, he, in company with William Butler & Son, bought Mr. White's business, which was conducted under the style of Butler, Brown & Co. The elder Mr. Butler died in 1877, when Mr. Brown's brother, Col. H. Martin Brown, and Charles H. Child, entered the firm, and it became Brown Bros. & Co.

From the first, Gov. Brown took an active interest in state and municipal affairs. In 1880, he was elected to the Common Council, of Providence, and served four years. Two years later he was tendered the nomination of mayor, but declined. In 1888, he served as presidential elector, and four years afterward the Republicans nominated him for governor.

He was elected, being the first gubernatorial candidate to secure a majority vote since the extension of the franchise. At the last election, the first under the plurality law, he was chosen by over 6000 plurality.

His excellency has often been called upon to render service in posts of trust and financial responsibility. He is president of the Home Investment Co., and vice president of the City Savings Bank, of Providence, among other concerns.

Some idea can be gained of the extent of his social relations, when it is known that he is connected with the Young Men's Christian Association, the Art Club, the Talma Club, the Athletic Club, the Advance Club, the Providence Press Club, the Business Men's Association, the Board of Trade, the Athenæum, the Pomham Club, the West Side Club, the Rhode Island Art Institute, the Rhode Island Historical Society, the Rhode Island Horticultural Society, the Rhode Island Society, the Sons of the American Revolution, the Royal Society of Good Fellows and the Norfolk Club, of Boston.

Gov. Brown is an active and valued

member of the Masonic Fraternity, having passed through all grades of Freemasonry. He entered Adelphi lodge, Providence, in 1883, of which he was Worshipful Master in 1890. He has received capitular degrees in Providence Royal Arch Chapter and the order of Knighthood in St. John's Commandery. He has also taken the degrees of the Ancient Accepted Rite and holds membership in the Scottish Rite bodies of Providence. His church connection is with the Beneficent Congregational Society.

Gov. Brown, while an ardent Republican by force of his convictions, is absolutely impartial in his administration of affairs, ever mindful of the advancement and welfare of the whole people. He has brought to the office a practical grasp born of his business experience, combined with affability, quickness of comprehension and abundant common sense.

—A Tartar prince is named as the pioneer of American cotton raising in the vast region called Russian Turkestan, in place of the much inferior domestic product. He went to that country in 1883 and began encourageing farmers to raise American cotton, in some cases lending them money on their crops. He established gins, receiving a subsidy from the government to uphold and further his enterprise. His example was soon followed by several large firms of European Russia, and wealthy merchants of Bokhara began to engage in the trade. It is said that the plant deteriorates in Turkestan and can only be kept up to its high standard by a frequent renewal of American seed. There was last year shipped from Turkestan, 72,000,000 pounds of American cotton raised on 270,000 acres. Nine years ago only 553 acres were planted with American seed. The volume of cotton imported to Russia in 1893, fell off 2,500,000 poods, a striking showing where it is remembered that each pood nearly equals 28 1-2 pounds.

—A Rhode Island overseer writes, asking for suggestions regarding the best way of managing help in weave rooms. He says: "I often think if the matter was more freely discussed we should have fewer strikes and better production." Concerning his own experience, he says: "I once went into a weave room to take charge where most of the help were paid by the day. I wanted more cloth at less expense, and so gradually worked the operatives over to cut pay. I soon found the help were taking off more cloth and were making more money at a proportionate saving of about $200 to the department. The operatives were more contented, the change having been accomplished without friction.

—The difference between Continental and English knit goods manufacturers, is forcibly illustrated by the testimony of a representative of a firm of American machinists who has recently been introducing a well-known knitting machine in Europe. He says: "Sample machines were sent to agents in England, France and Germany, with instructions to place the same before leading manufacturers in their district. This was done in part by sending out samples of the work done. The patronage was solicited of twenty-five firms in Great Britain, twelve in France, and an equal number in Germany. Answers were received from French and German firms within four days, and orders resulted in nearly every case, but up to the present time not a word has been heard from England. So eager were the continental firms to adopt the improvement, that they insisted upon the sample machines being placed in their factories. Even the sample machines sent to England have been forwarded to the continent."

—A bit of a story comes all the way from New South Wales, regarding a flock of a thousand sheep which were driven away and shorn. Then they were driven back to their Bo Peep owner as the enterprising thief wished to save pasturage until another crop was ready to be harvested.

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New England Textile Directory.

The October issue of the TEXTILE WORLD contained a complete directory of the textile establishments in the New England States, giving name of mill, location, railroad connections, distances, officers, agent, superintendent, capacity of mill, kind of goods made, water power or steam, whether dye house or not, selling agents, etc.

It is illustrated by specially prepared maps of each State, showing the location of each city or town where there is a textile establishment, and only such towns.

Directory of Wholesale Buyers of Textile Fabrics.

In the January issue is contained a list of the large buyers from first hands, viz: The manufacturing clothiers, suit and cloak manufacturers, cloth jobbers, large jobbing and retail houses in the principal trade centres of the United States. In most instances the individual buyers' names are given.

Copies of October and January issues may be had for 50 cents each at any of our offices, as long as the editions last.

The Middle States Textile Directory will be published in the April Number.

—We direct special attention to the announcement in our Colors & Dyeing Department, on page 67.

—Belgian Textile Manufacturers are shrewd enough to widen their market even in the smallest ways. Take, for instance, the Belgian colony on the Congo river, in Africa. Less than two years ago, England had a monopoly there in textile goods. Something should doubtless be allowed for the support of the Belgian government, but the result is scarcely the less striking. More than two hundred samples of Belgian goods, manufactured for the Congo nations, were exhibited in the Congo pavillion of the Antwerp exposition. The Belgian manufacturers visited the negroes, counselled with the leading men, and studied the extravagant, whims of the women. After that they went so far as to put up their wares in small packages, conveniently carried on the head, so that the past obstacles vanished and they captured the trade.

—This talk of transplanting New England cotton manufacturing to the South, promises to have far reaching effects in an indirect way. Already many of the far western papers are arguing that if it is unnecessary to ship cotton from the South to New England for manufacture, and then back again, it is equally unnecessary to ship hogs from Iowa and elsewhere to Chicago for slaughter and then return them.

—Says an exchange: What is "style"? We will tell you. A Frenchman throws himself upon a couch in reverie. Presently phantoms appear and toy with his imagination. He grasps a few thoughts, springs to his feet, goes directly to the Bon Marché, buys a few yards of material, and, with a nervous twitter common to his race, seeks his abode and transforms the same into a garment. The continent adopts it, Americans go frantic, fashion molders develop it and give it a lease of life.

—Intensive farming is the language coined for reducing the cotton acreage one-half, and doubling the crop at the same time.

Dissolution of Congress.

The dissolution of the Fifty-Third Congress, at the beginning of this month, brought with it a greater feeling of relief than that of any other congress of recent years. No congress ever failed so signally in carrying out the wishes of the people. It not only failed in meeting its responsibilities, but such legislation as it did enact, was of an essentially disturbing character, reflecting a degree of incompetency, foolishness and lack of leadership, which has been a disgrace to American government. No congress ever had a greater opportunity presented it to do great things for the country's welfare. Its duty was plain. Selfishness, greed, wire-pulling and lack of cohesion, were in the ascendency, however, and failure was inevitable.

The result of the labors of the past congress, has been the passing of a tariff bill, which has not only not satisfied the country at large, but has failed to satisfy themselves or any business interest; the foisting upon the country of an odious income tax, for which there was no necessity; a number of questionable and needless appropriations, which will characterize the body as one of the most extravagant of its kind; and a total failure and neglect to do anything commendable regarding the most urgent issue of the times, the financial question. There is, and has been, a crying need for an improvement in our currency legislation, which shall place our finances upon a stable basis. Congress has utterly ignored the needs of the people in this regard, and where it could easily have done some good, it has refused to act.

It retires with our revenues in a still unsatisfactory condition. As a revenue measure, the tariff has thus far proven a failure. Another deficiency will be added this year, in the revenues, to that of the previous fiscal year, which was the greatest witnessed for nearly a generation. No wonder that the people have been glad to say good-bye to a body whose career has been so disappointing.

The adjournment of such a body will be a substantial help to the business interests of the United States, although, of course, there is not likely to be any extraordinary expansion of business until currency agitation ceases, and our currency laws are on a sound basis. This has got to be done, sooner or later. Whether the new Congress will be of sufficient calibre to undertake the task, remains to be seen. Indications are, now, that if anything definite is accomplished it will be at the cost of certain concessions to the silverites, which would be anything but satisfactory to the sound money interests of the East. The recent bond sale, however, in its effect upon the gold reserve, will prove a helpful factor in the situation, and with the restful feeling following the adjournment of Congress, and immunity from disturbing legislation, business interests will be better able to take care of themselves than they have been. During the spring and summer months, there will be better business opportunities than there have been lately, and these will be greatly improved if the crops of 1895 promise well.

Conditioning House for New York.

A conditioning house, is to the majority of Americans such an enigma that its purpose should be explained by way of preface. A difference of opinion has always existed between American importers and British exporters in regard to the condition of goods or materials of commerce.

Though England and the United States use the same weights and measures, there is always a difference between yarn, wools and pieces as they are measured and weighed at shipment and the talley taken at their final destination in America. This difference is often so great that it has an important bearing on the profits of the transaction. This difference is due in large degree to the climatic differences of the two countries. Goods invariably shrink upon being brought into this climate and damages are frequently asked. The establishment of a conditioning house in New

York, would do away with all this friction, for an importer could then demand that the goods be accompanied by the certificate of a legally authorized conditioning house, which would settle the matter.

A house of this character is comparitively new to the English. Houses have been established at Elberfeld, Crefeld, Lyons, Roubaix and at Basle on the continent. The English have a conditioning house in Bradford, established by an act of Parliament. The success of this establishment has brought about the agitation of the establishment a similar house in Manchester. It is strange that the American people should let Englishmen establish houses to regulate the differences between American and English merchants, every thing being in the hands of England. The house in Bradford has established the fact that the difference on wool, raw or manufactured, is about two per cent. During the past year the Bradford establishment has gained the almost unanimous confidence of the mercantile and manufacturing community, the certificates of the house being accepted as a basis of arbitration. The Bradford House is self-supporting, the only outlay being on the start. In England twenty-five cents is charged for each test, and the Bradford House at this rate, has been enable to pay interest, sinking fund, depreciation charges, and still have a surplus of some $700. The business of the House is not confined to making tests for the export trade. It also determines on raw cotton or other fibre yarn, (1) absolute dry weight, (2) true counts (length and weight combined), (3) twist, strength, and elasticity; on cloth, (1) breaking strength, (2) count of yarns used, (3) weight, length and width, (4) reeds, picks, and number of ends.

These tests being made for the settlement of disputes, are executed with every care that science and experience can suggest, in duplicate, and the calculations worked out by different methods and persons to insure accuracy. An official certificate is given showing the result of each test, the strictest confidence being observed.

A house of this sort should be established at the largest American port of entry, and be conducted by the government. Every manufacturer should lend his support.

Under the present system the manufacturer is often at the mercy of an examiner in the pay of the consumer.

The Movement to Reduce the Cotton Acreage.

The general terms of the articles of acreage agreement of the Cotton Growers' National Association, are to this effect: That each cotton grower signing shall obligate himself to cut his cotton acreage 25 per cent. the coming year; to pay an admission fee of two cents per acre (this may be changed to a general fee of 50 cents); none of the obligations to be binding unless 75 per cent. of the farmers of the signer's county shall sign, and 80 per cent. of the cotton growing counties of his state shall join.

In addition to this, Col. Broughton, president for Georgia, has formulated a plan which he submits to the cotton growers of the state in the following address:

"When the cotton growers have permanently organized the American Cotton Growers' Protective Association, obligating themselves to reduce the acreage 25 per cent., then the plan is for each cotton grower to obligate himself to store 20 per cent. of his cotton in a warehouse in his own county, selected by the association to sell the cotton when it is actually needed by the spinners and commands a remunerative price.

"'I, ——, obligate myself to store 20 per cent. of my cotton when carried to market, in the warehouse selected by the American Cotton Growers' Protective Association, subject to sale by the association only, with the agreement that the association is to pay me when stored, less storage and insurance, and for all advanced on said price to issue to me certificate of stock in said association.' If cotton is worth five cents a pound when the farmer brings it to market,

and, instead of selling it, he stores it, stating price of same on day of storing, an absolute demand for the cotton; and when the association finds that there is an absolute demand for the cotton; and if, by virtue of its having been kept off the market until actually needed by the factories, it is sold for 7 cents, the farmer receives 5 cents a pound—same price as when stored—in cash, less storage, and a certificate in stock of the association for $10 a bale in addition."

Style Suggestions for Wool Manufacturers.

The heavy weight season has so far progressed that the bulk of orders are received, only a few being usually placed by jobbers. With the close of heavy weight selling, the manufacturer turns his attention to making samples of light weight goods. Some work, however, continues in the line of heavy weights, if the cloak trade is catered to, by making a line of all wool kerseys, selling from $1.00 to $1.20.

These suggestions are for manufacturers who desire to retain heavy weight business. It is always bad policy, however, to start so late in the season. The attempt is usually like the man who tries to catch the car after it has started; unless it waits for him, he gets left. The wisest thing to be done by manufacturers who have not obtained sufficient orders, is to let heavy weights go, and bend every effort to light weights. At the present writing it is evident that buyers will require in light weights only those goods which are "all wool." The general tendency is toward goods which are without cotton; so many sham fabrics have been put out that buyers are suspicious of anything containing a mixture.

In cassimeres, too, all wool fabrics are desired, in bright, clean colors, principally in the bluish grays, and gray and Oxford mixes. Browns in cassimeres will be in demand, if the brown is dark and used in combination with gray. Twist effects will also be largely sought after, and should be made neatly, twist being used in warp and filling.

In worsteds, it is a question what buyers will take. The past heavy weight season has shown a great decrease in the worsted business, owing to the demand for cassimeres. The newest thing for manufacturers is a line of all wool goods, in "Saxony," the coming finish. Light colors should be chosen. Fine neat stripes in this class of goods will be sold for suitings.

Clays will be sold cheap in light weight goods, as on this class, at 12 ounces and 14 ounces, foreigners can outdo domestic manufacturers.

Kerseys, in light tans and medium olive mixes, will sell for cloakings, if made in a firm fabric, to weigh 12 to 16 ounces.

Reference Samples.

There has been a great deal of talk, lately, regarding the reference sample business. This branch has kept growing, until it has assumed enormous proportions. Years ago the buyer placed his order when he was shown the samples. Then lines were few in number. Now the buyer has to find some way by which he can compare the lines, many of which very closely resemble each other in style and quality. After looking at many lines, it is impossible to carry in the mind a distinct impression of the relative merits of the goods. The outcome is the reference system.

Under the old method, buyers often ordered before they had seen competitive lines, and if those later shown were lower in price, they canceled the early order. The system now in vogue among buyers, is to canvass the market, make selections of all the styles which please them, and have samples sent.

Much can be said in commendation of the new method. The complaint is made, that the present way takes more cloth, but it is better for a manufacturer to put more money into reference samples, and know that when orders are placed, they are reasonably sure, than to stint on reference samples, and have orders canceled, after goods have been started in the mills. Nine times out of ten they must be sold at a discount.

The point is also taken, that in giving

reference samples they are liable to fall into other hands and be copied. In reply it may be said, that if a line of goods is popular enough to be copied, it will be, sooner or later, whether or not reference samples have been distributed. A manufacturer should set for himself a high standard on the goods he is manufacturing; if he lives up to it he need not fear competition.

Buying from reference samples places goods entirely upon their merits, and gives every manufacturer an equal chance. There is said to be a firm in New York which pretends to buy from reference samples, simply to get samples to sell to commission houses.

Ginning at the Mill.

In the February issue of the TEXTILE WORLD, a correspondent raised the question of the saving to be made by handling cotton direct, without baling it. We deemed the scheme impracticable, and the weight of opinion is in our favor. However, a Georgia paper remarks:

"Some of our Southern cotton mills have found it much to their advantage to buy the cotton in the seed, and gin it for themselves. The work and cost of baling is thus saved entirely, and it is claimed that the fibre is in much better condition, and more easily prepared for the spindle than when compressed into bales for shipment."

On the other hand a South Carolina superintendent writes: "There are a few small mills in the South running a gin in connection, and ginning a part of their cotton, but there are none ginning their whole consumption. Were such a thing possible, it would not be practicable, as storage room for loose cotton would be out of reason. I have used some cotton direct from fields to gin and gin to mill, but never with satisfactory results, as cotton requires a few weeks' ageing after being ginned, to work properly in carding rooms. I remember the first fresh cotton I worked after coming South. For several days I had been working a lot of inferior cotton, thinking that after I had finished it I would start on new cotton of a better grade. I started mixing it, however. Before it got to the spinning frames, I was forcibly reminded of a run I had in Massachusetts years ago, on a very sultry dog day. Since, I am always careful to have a supply of old cotton with which to temper freshly ginned stock. With five years' experience in running mills in the South, I should be stongly opposed to running freshly ginned loose cotton."

List to the Tintinnabulations.

Wool is not going to the dogs. On the contrary it is going away from them. James E. Wells, of Ashland, Oregon, has bought 600 bells and 600 leather straps. Mr. Wells, when wool growing was profitable, ran a large band of sheep, but he now has only 600 head. He finds that with the low price of wool, he cannot afford to hire a herder. Accordingly, he will trust to the tintinnabulations of 600 bells to frighten away coyotes, etc.; also to ring out for protection. The shepherds may be able to get a job driving street cars in Brooklyn or Bloomingdale, but what is to become of the Scotch collie. The sheep dog industry has not only been impoverished, but actually ruined. Something must be done to prevent these dogs from swelling the idle canine army. A ship should be chartered to carry them to Australia, where wool is thriving, if they are to be spared the butcher's block and its inevitable outcome.

—Dockham's Directory for 1895 has been issued. Everyone in the textile trade is familiar with Dockham's and it is needless to dwell upon its valuable features, more than to say that several new ones have been added, notably in the insertion of the new tariff schedule in comparison with the old, the list of deaths of prominent manufacturers, additional statistics relating to textile industries, and other points of interest, which combine to make this volume a credit to the publishers. Price $6. Received from C. A. Dockham & Co., 131 Devonshire St., Boston, Mass.

The Textile World's Middle States Directory.

We would direct special attention to our April number, which will contain the directory of the textile establishments in the states of New York, New Jersey and Pennsylvania. We have just completed the canvass of New York State. All the larger districts have been personally canvassed by our representatives, and the outlying smaller towns have responded to our mail requests for information in such a manner, that we can promise the directory to be contained in our April issue will be the more correct and free from errors than any similar publication before the public to-day.

In the canvass of the Philadelphia district, we have had two and sometimes three agents employed for the past six weeks. With the exception of *thirteen* establishments in the so-called Philadelphia district, embracing Manayunk, Frankford, Germantown, Kensington, Camden, etc., our representatives have visited *every mill*. We believe that in no previous work of this character has such a thorough canvass of the city of Philadelphia been made. Great improvement in the map features of the work will be noted, over the October New England directory. Special maps have been engraved for this edition at large expense, and we have also prepared a general skeleton map of the city of Philadelphia, also special maps of the leading mill districts, each of which will be given a full page. The gratifying encouragement given to these directory features by the trade, and the approval expressed by our subscribers, encourages us to spare no pains in making these features of the greatest value to the trade.

In making this mill-to-mill canvass for directory information, the subscription work of the TEXTILE WORLD naturally receives attention, with the result of most gratifying and constant increase in the subscription list of the magazine, which, in spite of hard times and advance in price from $1 to $2 per year, keeps on growing, and making a new "high water mark" record each month.

—The Southern delegates who recently visited New England, to corral a few cotton mills have most of them returned home, and their official reports to the various city councils are more instructive than miles of speculative editorials. Among the places which sent agents to Boston, was the city of Athens, Ga. The report of this committee is fairly representative of them all and is worthy of reproduction in part. Here it is:

"Upon our arrival in Boston, the headquarters of all the New England manufactories, we were soon impressed with the fact, that the excitement, the interest and the great desire for the removal of the cotton mills of New England to the cotton fields of the South was much greater here than among the mills themselves. With millions of dollars invested in their Eastern or New England plants, they most naturally are seeking in every way possible to protect them, and if a movement is made at all on their part it will only be to establish additional plants in the South protective of their interests in so far as relates to the manufacture of a certain class of cotton fabrics, such as are now being made in the South and with which they cannot successfully compete. Even this contemplated protective movement is largely contingent upon their present experiment in transforming their mills exclusively into the manufacture of the finer grades of goods, heretofore so largely supplied by the Eastern mills.

"In this connection, your committee cannot forbear the suggestion, that if it be the desire and intent of the South to utilize its natural advantages with which our section is so largely supplied and thus make our country a great manufacturing section, then it can be more easily and certainly done by seeking to induce uninvested and surplus capital to invest in Southern manufactories than through any effort, however well directed, looking to the removal of long-established Eastern mills to our Southland, however great and attractive our natural advantages may be. Again, when the people of the South begin to prove their faith by their works and invest their surplus capital in Southern manufactories, rather than in enterprises of less certain profits, then no more inductive movement could be inaugurated or one which would so surely be supplemented with foreign capital seeking profitable investment."

Clarke Merchant.

Clarke Merchant is best known to the manufacturing public, as founder and active head of the house of Merchant & Co. (Incorporated), Philadelphia, which is one of the largest importers and manufacturers of tin plate, copper and architectural metals in the United States.

His record in this business dates from about 1865, when he embarked alone in Philadelphia as agent of the New Bedford Copper Co., his trade being principally in sheathing metal. To this he

CLARKE MERCHANT.

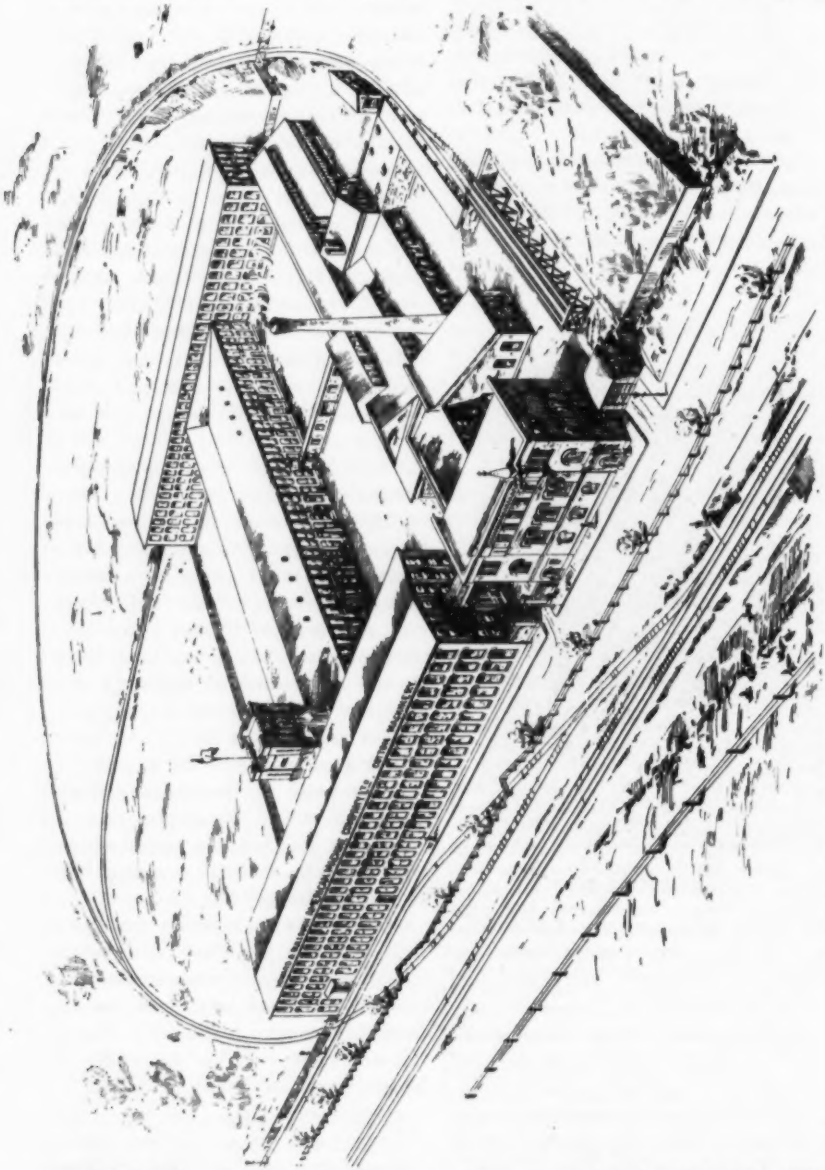
soon added sheet copper, and his business growing, took a larger store, in 1868, at 517 Minor St. His next move was to 507 Market St., where he remained ten years. While there, about 1878, he added tin plate to the line of goods handled, and eventually made an arrangement with the tin manufacturers of Wales, by which he gained a controlling position in this line of trade. Some of the leading brands of roofing tin, to the extent of an entire production, are handled exclusively by his house.

The success of Mr. Merchant's ventures may be attributed largely to open handed dealing with his customers. Some years ago he began to guarantee the brands of tin plate handled by him, and to stamp the grade, size, and weight on the plates, thus giving the customer a full knowledge of what he was buying. The system well nigh revolutionized the tin trade, as most dealers have been obliged to adopt it. Merchant & Co. have branch offices in New York, Chicago and London, each under the management of a resident agent sent from the Philadelphia office. Their present large building at 517 Arch St., was built especially for the business, and strengthened to bear the great weight of brass, tin, iron and other metals which make up the stock of the firm.

Clarke Merchant was born at Oglethorpe Barracks, Savannah, Ga., Sept. 20, 1836, and comes from a patriotic family. His grandfather, George Merchant, fought in the war of 1812, and in later years was New York State Treasurer, and Mayor of Albany. His father, Charles Spenser Merchant, was one of the first cadets admitted to West Point, graduated in 1813, and served with marked gallantry in the U. S. Army until August 1863, when he was retired with the rank of Brigadier General. He died in 1879. A brother, also a West Point graduate, died from a wound received while in service against the Seminole Indians of Florida.

These soldiery instincts developed early in Clarke Merchant, and before his entrance into mercantile life, he was known to army and navy circles for his conspicuous service in the U. S. Navy. He was entered in the U. S. Naval Academy as a cadet, and graduated as a midshipman in 1857. His first cruise in that capacity was on the sloop-of-war "Germantown" to the East Indies, China and Japan. Afterwards he was made executive officer of the steamer "Toey Wau" on its trip to China with U. S. Minister Ward, and performed

notable service in Chinese waters. He was subsequently sent to the Mediterranean on the steamer "Susquehanna," and on the outbreak of the war, was appointed to the "Pensacola." He was flag lieutenant under Admiral Montgomery, and was afterward made the ordnance officer of the Pacific squadron. He was later appointed first lieutenant on the frigate "Roanoke." Mr. Merchant is a fine talker, genial and interesting, and of striking military bearing. On the occasion of the 10th annual meeting, last October, at Philadelphia, of the commandery-in-chief of the Military Order of the Loyal Legion of the United States, of which he is a member, he opened his elegant home to the distinguished delegation, and tendered the entire body a grand reception.



THE NEW PLANT OF THE HOWARD & BULLOUGH AMERICAN MACHINE CO.

The New Plant of the Howard & Bullough American Machine Co.

As people go from Branch Ave. toward what is designated as the tin bridge in Pawtucket, R. I., a glimpse is caught of one of the finest cotton machinery plants in this country, the Howard & Bullough American Machine Co., Limited.

The great structure, just finished, is located on the north side of the Boston & Providence railroad.

The machine shop, 349 by 69 feet in size and three stories high, is the main building. It embodies all modern advantages, the walls being heavy and the construction nearly fireproof. On the first floor the tools (all of which were especially made for this plant) are set on heavy granite foundations, ensuring exact work. All the heavy machine tools for milling, planing, turning and boring, etc., are located on this level. The erecting shop is on the second story, through the centre of which runs an elevator, 8 by 16 feet in size, and capable of hoisting six tons at a time. The erecting room is subdivided for the setting up of half feeding cotton openers, lappers, cards, drawing and roving frames. One end of the third story is used for making top flats for revolving flat cards, also for grinding, testing, and the manufacture of saw tooth lickerin wire and special work. The other end is devoted to the pattern makers' department and the carpenters' shop.

In the centre of the main building, on the rear side, is a fireproof tower, containing iron stairways connecting with the different rooms. The tower extends 20 feet above the roof, and has at the top an iron water tank holding 10,000 gallons of water for fire purposes.

On each side of the tower is a building, one used as a blower room, the other for polishing, thus preventing the incidental dust and dirt from scattering about the shop. The belts in this department run from below, while a pipe from each machine carries all the dust and emery out of doors.

In the rear of these two buildings is the annex, 100 by 200 feet, two stories high. At one end of the annex is a door through which runs a track connecting direct with the foundry. The track runs the whole length of the main building, carrying an electric car which conveys the castings.

An electric overhead crane runs the whole length of the main building, capable of carrying several tons.

A part of the annex is used for the cleaning and annealing of castings. Next is a storehouse for castings, and beyond one of the largest and finest blacksmith shops in the country, equipped with trip, steam and drop hammers, power punching machines, etc. A track also runs the whole length of the annex, so that the motor car can deliver castings on any part of the first floor. The second story of the annex is used for light milling, planing, turning, boring, etc., with most approved tools.

The foundry is 51 by 350 feet, built of steel with monitor roof. It has electrical traveling cranes and every modern appliance.

At this end of the foundry is a wash and coat room, and still nearer, the foundery machine shop, principally for pattern and flask making. Next are the core and oven rooms, the boiler house fitted with three 72 inch by 18 feet 4 inch return tubular steel boilers.

Last stands the engine house, two stories high, the lower rooms being used for engines and dynamos. A 200 horse power engine propels the machinery in the main shop, while a large generator furnishes power for the cranes and lights the plant. The second floor of the engine house is to be used as a show room, containing full sets of all the different kinds of machines made. The show room will have direct connection with the office.

The handsome office is of brick, 40 by

80 feet standing on a line at the north end of the main building, a driveway running between. The third story of the office building is used for a drafting department.

The whole property is enclosed by a fence, just inside of which is an electric railway encircling the plant. About 800 hands will be employed when the concern is running at full capacity. J. C. Potter, late of the Potter & Atherton Machine Co., of Pawtucket, is president of the company, and C. E. Riley, treasurer. Mr. Riley has long been of the firm of C. E. Riley & Co., of Boston, importers of machinery. Mr. Potter is widely known as an inventor of cotton machinery, having been granted eleven patents within a few months. Howard & Bullough, of England, have recently brought out seven inventions, making eighteen patents recently added to the long list owned by the concern.

Duplicate orders are already being received for machinery embodying these patents. Combined self-feeding openers, breakers and finisher-lappers are being made by the company from new patterns and containing improvements by which the company asserts cotton is opened and cleaned better than by any other device. All parts being made by special tools are exact duplicates. The bearings are all self-oiling and are so arranged as to prevent oil from getting inside. Lap racks sliding on steel shafts prevent tilting and breakage and a new differential evener improves the evening, while the roller bearings of the calender rolls save much wear and power. The company is also building revolving flat cards, electric stop-motion drawing frames, slubbing, intermediate and roving frames. All are exact duplicates of those made by Howard & Bullough, who are too widely known to need a word of endorsment. There are at work to-day of the latest improved type of these machines, over 8000 cards, over 40,000 deliveries drawing and about 8000 slubbing intermediate and roving frames, fully a quarter of which are in this country.

Fireproof Flooring.

Recent tests of combined concrete and iron wire flooring made at Trenton, show that the metal and concrete united possess considerable merit in the direction of fireproof construction, as well as strength. It is easy enough to build a floor with concrete, or many of the clay products which will be strong enough and even fireproof, but it is hard to secure at the same time, lightness with reasonable cost. Such floors add little to the stability and stiffness of the building, considering their weight and cost. The most interesting feature of the quantitative tests referred to, was the reduction in weight, being about ten per cent. over the hollow filled floors. Exact comparative estimates of cost are not at hand, but the combined concrete and iron wire floor is surely not expensive. The rate of expansion and contraction, due to changes in temperature, are so nearly the same for iron, steel, cement, mortar and concrete, that for practical purposes they may be considered identical. There is, therefore, nothing to be feared from such a combination, provided the metal is well embeded in the concrete.

—Fifty pounds of cotton paid for 200 pounds of fertilizer in 1870, and 50 pounds of cotton paid for 200 pounds of fertilizer in 1894, although cotton has dropped meantime, from fifteen to five cents a pound. And, in addition, the planter receives twice as much for his money, getting double the amount of plant food to the ton of fertilizer. In other words, the grower gets twice as much fertilizer for his money as he did twenty years ago. While this element remains in the situation there are many planters who will crowd their cotton acreage to the limit even should four cents rule.

—Why can't somebody devise an article of food which shall be to mutton what shoddy is to wool? It would bring about a mutton chop.

QUESTIONS AND ANSWERS.

Under this head we shall undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

Bobbin Factory.

ATHENS, GA.

Editor Textile World:

Please send us copy of Textile World. We are going to put up a bobbin mill, and want information as to machinery, as well as a first-class bobbin maker. Any information you can give us would be appreciated.

C. W. BALDWIN.

Machine for Braiding Lamp Wicks.

MAUMEE, OHIO.

Editor Textile World:

Can you give us the address of any manufacturer who makes machines for braiding lamp wicks? Any information on this subject will be highly appreciated.

TOLEDO COTTON MILLS.

[The New England Butt Co., Providence, R. I., make a machine for braiding wicking, which we believe costs about $15.]

Jute Manufacturers.

LANESBORO, MINN.

Editor Textile World:

Will you please give us the addresses of a few manufacturers of bagging, burlap or jute, and greatly oblige

NORTH STAR FIBRE CO.

[Our advertising columns contain the addresses of several such firms, among them the Wilmington Mills Mfg. Co., and Gorham Rogers & Co. We would also mention the Ludlow Mfg. Co., Essex St., Boston, and J. H. Lane & Co., Boston and New York.]

The Relative Importance of Labor.

Editor Textile World:

I thank you for receipt of copy of your January number. Enclosed please find check for $2 for subscription.

I am interested for parties who wish to get a small cotton mill established in Eastern Texas. From a long residence in the particular locality I am well acquainted with the resources of the place. I would appreciate very much an expression of opinion from you as to what relative importance the item of securing satisfactory labor bears to the other features favoring the establishment of such an industry.

There is an abundance of good steady country labor, people who are positively hungry for work. Without exact knowledge, I have thought that this was a *decided* advantage. Am I right?

Assuring you that I shall greatly appreciate an expression of opinion from you, candidly given, I am

Very respectfully yours,

F. H. & B.

[Concerning the relative importance of satisfactory help in the establishment of a cotton mill in a new location, would say that this is quite an important consideration. It would be absolutely necessary to have a certain proportion of skilled help from the start. We do not think it would be possible to get along comfortably with less than half of the operatives skilled help at the start, as the processes are intricate, and proficiency cannot be acquired without considerable experience. Green operatives would need from six to nine months' experience before they could do work that would enable them to use their service to any degree of profit, and even if they were giving their time for nothing, the inferior quality of the work they would turn out would be of questionable value. Once trained, however, this steady country help make the best class of operatives, as they look to the factory for their living, and would probably have very little difficulty in regard to labor troubles.

If it is a small village, you might find it difficult to get Northern overseers to go there at the price that you ought to pay in a small mill. We do not know what the size of the mill is that you have in mind, but for a 5000 spindle mill you could not afford to pay more than $2.50 to $3 per day for your overseers.

Do not be misled by giving undue importance to the fact of buying cotton cheap, and what is called "wagon" cotton, that is, direct from the farmers. This is of course an important consideration, but to our minds, one of the less important elements that enter into the location of a mill in the South. The question of cheap power, fuel, long labor hours, and freedom from restrictive legislation, to our minds, are far more important considerations than the saving in cost of cotton. We should be glad to hear from others on this subject.]

Cashmere Gloves.

AMSTERDAM, N. Y.

Editor Textile World:

Will you kindly let me know if there are in this country any manufacturers of machinery for making cashmere gloves, and if so, their names and addresses.

AMSTERDAM.

[If our correspondent means the gloves known in the retail shops as "cashmere" gloves, cut and sewed, would say that the cloth is made on very fine gauge spring needle machines. Manufacturers of these machines are represented in our advertising columns.

There is another kind of gloves sometimes known as "cashmere" gloves, with long silky fibre. These gloves are made in Scotland, and the stock costs about $4 per pound. There were only about 100 bales grown in the world last year. It is full of long and short black hairs, and these have to be removed by hand. Our correspondent doubtless refers to the cut and sewed gloves.]

Hosiery Yarn Wanted.

KANSAS, ILL.

Editor Textile World:

Will you furnish us the address of a mill or commission house selling hosiery yarns Nos. 11s and 18s white, 11s mixes, such as 3/4 gold and white, Spanish brown, chocolate, and black and white. Also where we can get yarn in 18s, like sample enclosed, at prices quoted in your last issue of TEXTILE WORLD for Southern and Eastern yarns on cones. Also send us address of mill making good grade of 2/40s lisle thread in black and colors.

Yours very truly, OWENS & WILHOIT.

[We would refer our inquirer to the advertising columns of the yarn department of the TEXTILE WORLD, wherein he will find mills and commission houses represented who cover his requirements. We also write to tell you where you can get yarn like sample at prices quoted. TEXTILE WORLD quotations can be backed up by actual sales, for our reports are based on current market transactions at the time of writing.]

Tissue Paper for Cotton Batting.

DANVILLE, ILL.

Editor Textile World:

Will you kindly advise us of several firms who can furnish tissue paper for cotton batting, in sizes 16x30 and 16x36, in colors, pink, blue and yellow.

D— MILLS.

[Would refer you to the Rice, Kendall Co., Federal St., Boston, and Osborn & Wilson, 37 Warren St., New York.]

A Bleachery in the South.

CHATTANOOGA, TENN., Feb. 26, 1895.

Editor Textile World:

As you are aware, I presume, there are practically no bleacheries for cotton goods in the Southern States, and I see no reason why there is not a good opening for something of this kind, and will ask you, if it is consistent for you to do so, to give me an idea of the general requirements of such an institution, cost of plant, number of parties employed, horse power exerted, chemicals used and where they are generally obtained; in fact all the information that you have that will enable me to decide whether or not this would be a good location for such an enterprise, and very much oblige,

Yours very truly,
T. J. NICHOLL,
General Manager.

[Up to very recently there has been no bleachery, to our knowledge, in the South, which did outside work for the trade. There is now, however, one under construction by the management of the West Point Mfg. Co., West Point, Ga., which is not only to bleach the product of its own mills, but to do general work for the trade. It will call for an investment of about $30,000, and give employment to about 40 people. It will not only bleach cotton piece goods, but dye the same, in fact, act as general converters. The amount of power required is not large. The boiler capacity would need to be greatly in excess of the engine, as so much steam is required in the different processes.

In our opinion the principal points to be considered, are, first, whether the location is such as to enable you to compete successfully with existing establishments in the North; second, a plentiful supply of water of the right kind; third, good railroad and shipping facilities; and, above all, you must have the right sort of man to manage it, who combines a practical knowledge of the business with the necessary business experience, and an acquaintance with mills from whom you must get your work. With the right sort of man back of it, we should think that Chattanooga would be a very good location, as it is midway between the Southern States from whom it would get its cloth, and the markets to which you would sent it.

We should advise you to confer with the builders of the bleaching and dyeing machinery whom you will find represented in the TEXTILE WORLD.]

Upholstery.

The general expressions of a month ago, that trade in draperies and coverings was having an upward tendency, have not given place to less favorable reports. Mills operated fairly full to March 15th, on large orders, and a new impulse is now felt from retailers who buy for quick delivery.

The curtain and furniture markets were probably never so favored with novel and rich fabrics, nor were prices ever more attractive. The weavers' skill, and designers' art, reached a wonderful climax in the new lines of terry's, brocatelles and woolen and satin damasks, all of which are shown in profusion.

Lace curtains continue active, and hold good prices, and no regret is expressed by those who have prophesied the success of this industry in America, and who have backed their judgment by heavy investments of capital.

Carpets.

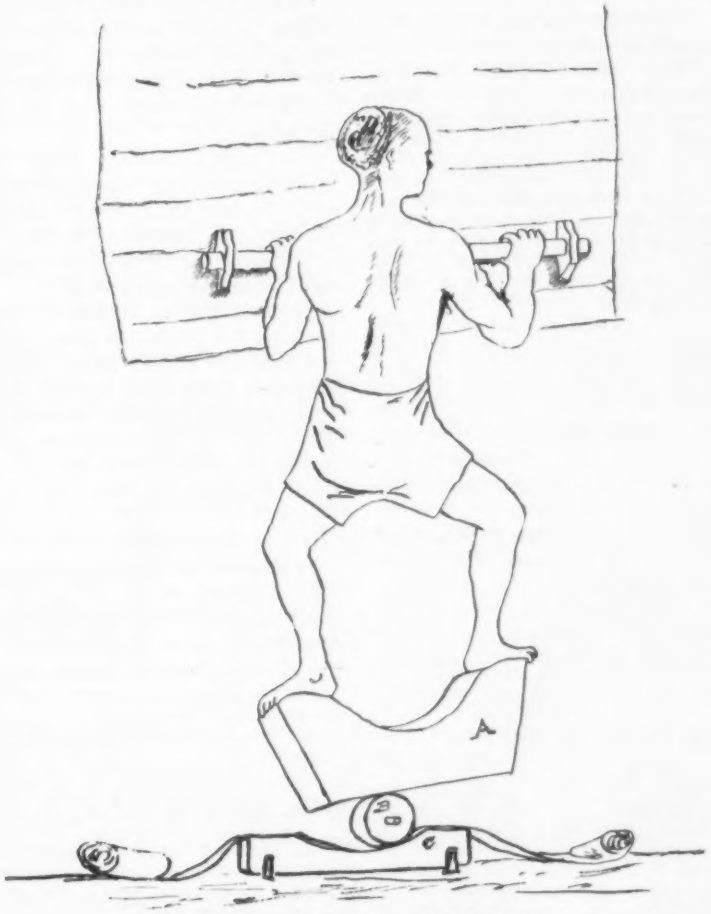
The season closing marked a gratifying increase in the volume of business, and guarantees the running of looms quite into the future. Small retailers are yet to round out the spring trade, after which it is predicted that the carpet industry will be nearer to normal conditions than at any time since the summer of 1893.

Several mills are still engaged on last season's orders. Prices, though lessened, are hardly scaled beyond a point in keeping with other declines. Carpet yarns and warps are reported to be too low, but it is conceded that all such stock is resting on a better basis. Speaking generally, the manufacturers are more contented and confident.

COTTON DEPARTMENT.

Calendering Cloths in Singapore.

The accompanying cut gives an excellent idea of the primitive method still in use in Singapore and neighboring Eastern countries, for finishing cambrics and shirtings after being dyed. The device has three sections; A, a block of granite; B, a wooden roller; C, a block of wood. It will be readily gathered that the machine is not especially expeditious. The gloss, it may be explained, is given to the cloth by beating it on a circular block of wood with a wooden mallet, but all dyed goods, glazed or not, are put through this laborious process.



CALENDERING CLOTHS IN SINGAPORE.

Official Data on Humidity.

The following data are of especial interest at the present time, when all facts bearing on comparative conditions for manufacturing in the North and South are receiving attention.

The following reports and tables were prepared at the instigation of a large Southern manufacturer, and the data are just as valuable to-day as they were when compiled.

UNITED STATES SIGNAL SERVICE.

New London, Ct., Nov. 19, 1889.

Sergeant D. Fisher.
Signal Corps, Augusta, Ga.

SIR: Your letter of the 16th inst. is at hand, and in compliance with your request for certain meteorological data from this station, I take pleasure to inform you that after a careful examination of the records, I find that the relative humidity at New London, during 1887 ranged 51%, 52% or more, by comparing the humidity at 3 P. M. with either that at 7 A. M. or 10 A. M. on the following dates:

	7 A. M.	3 P. M.	Range.
Feb. 9.	94%	40%	54%
Feb. 24.	100%	47%	53%
Oct. 30.	95%	29%	66%
Nov. 9.	90%	39%	51%

Very respectfully,
PAUL DANIELS,
Sergt. Signal Corps.

UNITED STATES SIGNAL SERVICE.

Augusta, Ga., Jan. 2, 1890.

Mr. Chas. Estes,
Pres. King Mills.

DEAR SIR: I find from the office records that during the year 1887 there were 43 days on which the humidity varied 52 per centum or more. The greatest range occurred Oct. 22, 1887, when it reached 67 per cent. Jan., 10 days; Feb., 2 days; March, 1 day; April, 6 days; May, 2 days; June, 1 day; Sept., 4 days; Oct., 7 days; Nov., 8 days; Dec, 2 days. Total for 1887, 43 days.

Very respectfully,
D. FISHER,
Sergt. Signal Corps.

Chats on Cotton Combers.

XII.

For the Textile World.

"I wish you would look at this Curtis comber; I can do nothing with it," said George to the overseer one morning, as the boss was making a tour of the room.

"What is the matter with it?" asked the overseer.

"The end nearest the pulley keeps breaking off about half way down the table, between the calender roller and the draw box;" answered George.

"What is the cause of its breaking down?" was the next query.

"I don't know. At first I thought the table had got a little greasy or dirty and I had the comber tender scour the table with emery cloth and oil, wash it with water and whiting and then rub it well with dry whiting to dry up the dampness, if any remained."

"That did not help it any?"

"No;"

"What else did you do?"

"I looked at the top calender roller to see if it needed oiling or if any dirt or waste had collected on the ends, causing it to slip and break down the end."

"You found that was not the cause of the end breaking down?"

MEAN RELATIVE HUMIDITY AT THE FOLLOWING POINTS FOR EACH MONTH, AND THE YEAR 1887.

Station.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean.
New Haven, Conn.	77.2	72.0	63 1	60.5	68.2	73.9	81.6	78.1	76.0	71.2	70.4	78.8	72.6
New London, Conn.	79.7	78.0	72.7	69.7	76.2	79.1	84.2	78.9	77.3	75.6	73.7	75.3	76.7
Chicago, Ill.	78.9	83.3	74.8	62.2	67.9	70.0	67.0	67.9	71.8	70.5	70.9	78.4	72.0
Eastport, Me.	79.9	73.8	73.2	72 2	80.7	80.3	88.2	80.2	79.0	75.0	73.3	76.3	77.7
Portland, Me.	82.9	76.4	72.0	62.8	68.0	75.0	79.9	74.6	72.4	70.9	68.3	75.5	73.2
Boston, Mass.	73.1	69.4	65.8	62.2	67.6	71.7	77.0	74.2	73.4	76.9	75.2	78.6	72.1
Atlantic City, N. J.	81.6	82.6	80.0	82.6	84.8	84.0	87.2	84.4	87.0	90.0	90.0	81.6	84.6
Albany, N. Y.	74.7	76.9	75 7	71.2	73.6	68.7	71.9	71.2	75.8	72.2	70.3	79.0	73.4
Augusta, Ga.	78.2	83 7	74.4	65·3	69.6	67.6	76.6	79.5	68 9	72.8	68.7	70.4	73.0

Compiled from the Annual Report of the Chief Signal Officer for 1888.

D. FISHER, Sergt. Sig. Corps.

"Yes. Then I looked at the back roller in the draw box to see if the leather roller had worn uneven; I also looked to see if the leather roll was running properly on the steel roller."

"Suppose either of those things ailed the roller, how would you account for the end breaking down?"

"In either case the back roller would have allowed the sliver to be pulled by the middle roller, which runs faster than the back one, and instead of drawing the sliver slightly between the two rollers, the place where the leather roller, did not touch the steel roller, would be drawn by the middle roller from the calender roller, causing too much draught for the distance the sliver has to travel and weakening the strand so that it could not carry its own weight, thus breaking the end."

"Good; but you say you found the roller all right; what else did you try?"

"I thought the leather detaching roller might have got awry, so I set it."

"Yes, if the leather detaching roller was crooked, it would have a tendency to cut the end, but as that did not fix it, I will try and see if I can find the cause. If you had looked more closely you would have observed an occasional thin place on each strand as the sliver goes up the table. There it is now. Watch the end you were speaking about. There! it has broken. Stop the comber and examine each strand. You will see each one has a thin place in it and each succeeding end is nearer the draw-box, but they managed to get in the rollers without breaking down, all except this one which had the farthest to travel. Now for the cause—the leather, or the steel detaching rollers."

"You say the leather detaching rollers are set properly; then we must look further. The detaching rollers get their motion from the steel rollers, which in turn get theirs from the large internal gear on the end of the comber. Look at the internal gear and see if the key has become loose. No? Well, we must look further—at the dog or catch, that drives the notched wheel and gives the internal gear its motion."

"The catch is all right and in good working order."

"Well, look at the cam that gives the catch its motion; also at the detaching rollers as they begin to turn forward at six and one-fourth."

"I do not see anything wrong, except, that there seems to be a back lash, but the shaft turns with the cam."

"Now we are beginning to get at the cause of trouble. Look at the gear that drives the cam shaft. See if it is loose?"

"Yes."

"I thought so; the backward and forward movement of the internal gear and steel detaching roller is very hard on the keys in the internal gear and cam shaft, and sometimes shakes the keys loose. If not found they soon wear the slot until the bushing becomes loose.',

"Now take the cam shaft out and get the bushing that the gear runs on keyed tight. You may have to get a new key put in."

"As you have never taken those cams out I will show you how.

"First take the catch off and put the springs, cam balls and small pieces in one of the sliver tins, so that they will not get lost. Now take the caps off the rocker motion then take the rocker motion off and put the caps on. Such precautions will save you a good deal of trouble, when you are putting it back, as there is then no chance for them to become mixed. Next, take the cover off the index gear, then take the notched wheel, and internal gear out, and the big gear off the end of the bottom calender rollers. Take the cam balls out, then the caps off the cam shaft, afterward get a chisel and mark the shaft on each side of the bushing that is loose so that the machinist will know just where to fasten it. Now loosen the cam shaft gear. You see the bolt which fastens the cam shaft gear to the bushing. Well, take that out, slide the gear until it will not engage with the index gear, then lift the cams out."

"I have had that key put in the bushing," said George.

"That seems to be all right," said the overseer upon coming to the comber where George was working.

"I see you have the caps on and the cam balls back in their places; now put the gear on the end of calender rollers, the notched wheel and internal gear back, with the caps on them, and put the rocker motion on, fastening it with the caps. Next put the catch on, also the springs, and then slide the cam gear back, into place, fastening with the bolt. Then turn the pulley round with your hand. Stop! there is something wrong—the detaching rollers are turning just as the needles are coming around and the nippers which should be closed while the needles are combing the cotton are wide open. How do you account for that, George."

"I don't know, unless some one turned the pulley while I was away."

"No such thing," answered the overseer; "it is because you did not get the cam gear on right. Turn the pulley until the pointer is at six and one-fourth on the index gear, loosen the bolt slipping the cam gear off again, then turn the cams forward until the steel detaching roller moves forward, put the gear in with the hole exactly opposite the hole in the bushing, then put the bolt in, and fasten tight. Now put the cover over with index gear on them, turn the pulley with your hand and see if the settings are correct."

Productions from Cotton Machinery.

The Indian Textile Journal has recently published a valuable table of productions from cotton machinery which we present herewith. The subject is covered very completely and with approximate accuracy. The figures are based on English machinery, but, nevertheless, the data is valuable for American use.

Note. Production depends upon—

Speeds of machines.
Class of cotton used.
Hank produced.
Working of machines.
The conditions of the various parts.
The twist put in (if any).
Efficiency of the attendant.

Note. Productions of slubbing frame calculated on spindle speed of 700 revolutions per minute; intermediate frame, 800 revolutions per minute; roving frame, up to 6 hank, 1100, and from 6 hank upward, at 1250 revolutions per minute.

PRODUCTIONS.

	Lbs. per 10 hours.
Double-acting Macarthy gin,	250 to 300
Saw gin, per saw	20 to 30
Crighton opener	.5700
Exhaust opener and breaker scutcher	3500 to 4500

SINGLE FINISHER SCUTCHERS.

Indian	2320 to 2500
American	2000 to 2320
Egyptian	1800 to 2000
Sea Island	1250 to 1420

REVOLVING FLAT CARDING ENGINES.

On Indian cotton	180 to 190
On American cotton	120 to 150
On Egyptian cotton	60 to 100
On Sea Island cotton	40 to 60

DRAWING FRAMES.

Preparation.	Per dely. 10 hours.
10's	200 lbs.
20's	180
40's	140
60's	100
100's	60

SLUBBING FRAMES.

Hank Roving	Hanks per spdl. per hour.	Product. per spdl. per hour. lbs.	Product. per spdl. 10 hours. lbs.
.40	1.07	2.67	26 7
.50	1.63	2.14	21.4
.60	1.56	1.76	17.6
.70	1.03	1.47	14.7
.90	.99	1.10	11.0
1.00	.97	.97	9.7
1.20	.93	.78	7 8

INTERMEDIATE FRAMES.

		lbs.	lbs.
.80	1.20	1.4	14.00
.90	1.09	1 2	12.15
1 00	1.07	1.07	10.7
1 20	1.04	.86	8.6
1.40	0.99	.70	7.0
1.50	0.96	.64	6.4
1 60	0 94	.59	5 9

ROVING FRAMES.

		oz.	lbs. oz.
2	1.03	8.24	5 2.4
2.25		7.15	4 7.5
2.50	.97	6.25	3 14.4
2 75	.95	5.68	3 8.8
3	.93	4.92	3 1 2
3.25	.90	4.50	2 1.3
3.50	.88	4.02	2 8.2
3.75	.85	3.65	2 4.5

Roving Frames.—Continued.

4	.82	3.30	2 1
4.25	.80	3.05	1 14.5
4.50	.79	2.83	1 12.3
5	.76	2.45	1 8 5
5.50	.73	2.13	1 7.3
6	.71	1.90	1 3
7	.68	1.57	15 7
8	.65	1.31	13 1
9	.63	1.20	12
10	.61	.98	9.8
11	.58	.85	8.5
12	.56	.80	8

RING FRAMES.

		oz.	lbs. oz.
4's	1.16	4.60	2 14
6's	1.06	2.80	1 12
10's	.98	1.40	14
12's	.92	1.20	12
16's	.77	.78	7.80
20's	.76	.62	6.20
24's	.73	.50	5
30's	.69	.37	3.70
32's	.65	.32	3.20
36's	.58	.25	2.50
40's	.54	.21	2.10
42's	.53	.20	2
50's	47	.15	1.50

SELF-ACTING MULES.

		oz.	oz.
10's	.49	.78	7.80
16's	.60	.60	6
20's	.70	.55	5.50
24's	.69	.46	4 60

Self-Acting Mules.—Continued.

32's	.64	.32	3.20
36's	.58	.24	2.40
42's	.55	.21	2.10
50's	.50	.16	1.60
60's	.41	.11	1.10
70's	.39	.09	.90
80's	.30	.06	.60
90's	.28	.05	.50
100's	.27	.045	.45
120's	.26	.035	.37
150's	.23	.025	.29
200's	.20	.018	.21
250's	.18	.012	.17

RING DOUBLING FRAMES.

		oz.	lbs. oz
12/2	.96	2.50	1 9
12/3	1.20	4.70	2 15
14/2	.87	2.00	1 4
14/3	1.08	3.70	2 5
16/2	1.00	2.00	1 4
16/3	1.01	3.06	1 14
20/2	.90	1.43	14
20/3	.91	2.18	1 5
24/2	.81	1.09	10
24/3	1.00	2.00	1 4
32/2	.76	.76	7
32/3	.88	1.30	13
36/2	.77	.69	7
36/3	.81	1.08	11
40/2	.73	.58	6
40/3	.77	.93	9
50/2	.65	.47	5
50/3	.69	.80	8

PRODUCTIONS OF WEAVING AND PREPARATORY MACHINERY PER HOUR.

Counts of Yarns.	10's	20's	30's	40's	60's	80's	100's	120's	150's
Single 40 hank reel	18lbs.	8½lbs.	6lbs.	4lbs.	3lbs.	2lbs.	1.7lbs.	1½lbs.	1lb.
Double "	35lbs.	17lbs.	11lbs.	8lbs.	5lbs.	4lbs.	3.4lbs.	2½lbs.	2lbs.
Pirn or spool winder (per spindle)*	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75
Bobbin winding frame (per spindle)†	1/3	1/4	1/7	1/8	1/12	1/16	1/20	1/24	1/30
Beaming machine‡	120lbs.	70lbs.	52lbs	40lbs.	25lbs.	19lbs.	10lbs.	8lbs.	6lbs.
Sizing machine§	340lbs.	200lbs	150lbs	110lbs.	70lbs.	55lbs.	40lbs.	30lbs.	25lbs.
Plain loom**	2lbs.	1	¾	½	¼	5/16	5/20	⅛	1/11

* 5 spindles of a spool winder are calculated to be equal to 1 loom.

† 2 spindles of a bobbin winder are calculated to equal 1 loom.

‡ 1 beaming machine is calculated to be able to supply from 80 to 90 looms.

§ 1 slasher sizing machine can supply about 300 looms. 10-lb bundling press will produce about 16 to 20 bundles per hour.

** It is almost impossible to lay down any approximately accurate table of loom productions. Production depends upon counts of yarns being used, class of cotton, number of picks, reed, width of loom, class of loom, etc., etc. The productions given are taken from looms working on the ordinary classes of plain and twill cloths made from the stated counts —40" looms being used for from 10's to 40's counts; 36" looms from 40s and 60s yarn; and 32" looms from 80's to 150's yarn.

For drop box looms deduct 17 per cent. from above productions.

For dobbie looms deduct single 10 to 15 per cent. from above productions.

Cotton Dress Goods.

HOW TO OBTAIN SWIVEL EFFECTS.

For the Textile World.

During the past few seasons there has been a great demand in silk dress goods, for what is known as swivel effects. A majority of these patterns must be produced on swivel looms, although some are obtained on the ordinary loom. However, now that the style has included cotton goods in the small spot class, the manufacturer must look for some method by which to secure these effects, if he is not in position to make them on swivel looms.

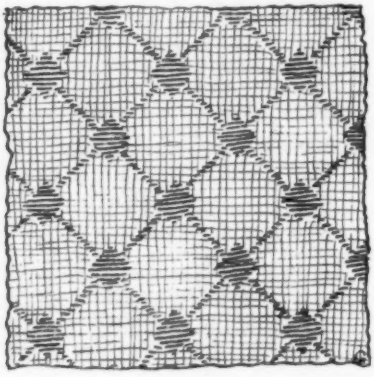
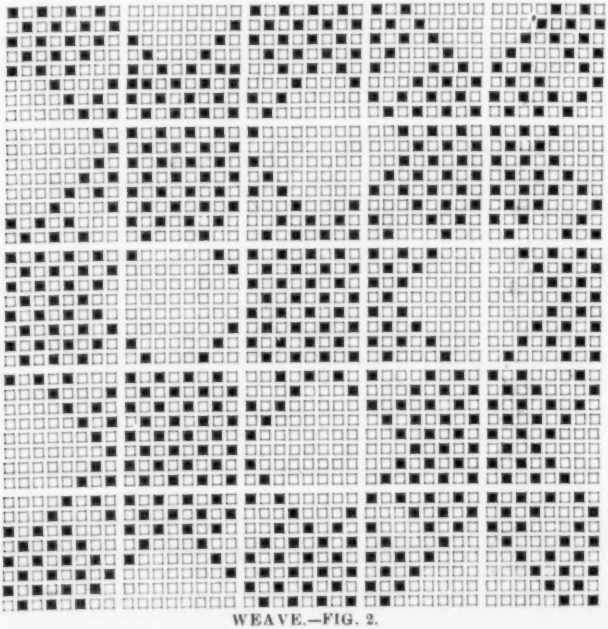


FIG. 1.

Many people have an idea that as small effects are desired, printed effects will do just as well. In this they err, however, for it is only the woven which are wanted, and will have a large sale. In Fig. 1 is an illustration of swivel effect, made by using the weave in Fig. 2, which repeats on twenty ends and twenty picks.

The pattern is a simple one, its principal beauty consisting in the use of contrasting colors in warp and filling. The warp yarn is 70 cotton with a hard twist; the filling a somewhat coarser yarn, of a soft twist. The warp should be in bright colors, such as blue, yellow, pink and red. These used with a white filling, present a very pretty effect, which approaches the swivel loom patterns, although produced on the plain loom.

By using a weave in which there is a plain cotton weave for the ground, and a filling overshot, an attractive effect can be produced. The principal thing



WEAVE.—FIG. 2.

to remember in designing this class of weave, is not to have the warp or filling float so long as to catch.

Hank Roving and Twist Per Inch.

For the Textile World.

It is important to carders to know exactly how much to twist roving, to secure the greatest production, and at the same time make the yarn strong enough to hold, run well and handle without difficulty. The square root of the hank has been adopted as a basis on which to work; not that it has anything in particular to do with it, but because it forms a regular scale on which to work.

There are twist tables in abundance, as varied as the men who made them.

Some tables are made on a regular grading scale, others are regardless of the fact that there are rules which should be adopted in establishing roving twist for any kind of frames. First — there should be a regular grading scale used. Second — the same rule should be used for all kinds, that is, coarse, intermediate and fine, on the same class of frames. To begin at the bottom, a hank of roving or cotton yarn is 840 yards. By half hank is meant 420 yards, weighing a pound; three-fourths of a hank, 630 yards, weighing a pound; one hank, 840 yards, weighing a pound; two hank, 1680 yards weighing a pound, and so on.

When the square root of the hank is used as a basis to work on, in establishing twist, it is the general custom to multiply the square root of the hank by some number, uniformly, from the lowest to the highest. For instance, 1.20 is a favorite English multiplier for fly frames. All kinds of hank, from the coarsest slubber to the finest fly frame, are multiplied by 1.20 to get the proper twist.

One may tell the first time the eye rests on a twist table, and what the maker used for a multiplier, if the table is regular. See what the twist of one hank roving is, as the square root of one is always one. The result is the multiplier used. Some, however, use the square root straight, without a multiplier. In such cases, the twist of one hank would be one turn of twist to the inch, and so on in that proportion for all kinds of hank. The multiplying numbers used in different tables run from 1.05 to 1.48, or rather twist requires that range of numbers.

The object of twist is to put roving in compact form — so compact as to hold together while winding on the bobbin, as it is made in the frame, and render off in the creels of other roving and spinning frames, without stretching or straining it in the process. That is all the twist needed; more is injurious. The writer uses 1.20 for fly frames and slubbers. While it is best to not lay down an arbitrary rule to be followed under all circumstances, it is well to have a rule, and vary from it as little as possible.

Carders should never increase or decrease twist, to increase or decrease quantity.

Never try to twist roving to overcome tension in roving frames, bad steps or dull skewers, in roving or spinning frames. After the twist has been put right it should never be changed for any of the foregoing reasons. When it is wished to vary from the rule — first increase when the roving breaks or stretches between the creel and the back roll; if everything else is right, increase the twist until it holds. Second — unusually high speed of frames sometimes calls for more than ordinary twist. Third — unusually heavy bobbins and uncommonly short stapled cotton need more twist. In either case, first decrease, when it is noticed that roving worms about between rollers, and does not draw well. If everything else is right, decrease the twist until it draws through straight. Second—unusually low speed of frames, light bobbins or long staple, may in either case do with less twist.

Steps in creels of roving or spinning frames, and the points of skewers, should be kept in order, or the roving will suffer. Flyers should be kept balanced on all frames making roving, and at right

angles with the bobbin. An intermediate speeder may draw from 475 to 525, and a fine roving speeder from 6 to 6.50. Flyers on roving frames should be well polished outside and inside, to insure a smooth passage for the roving through them.

Balance weights for rails—either bobbin or spindle, should either be lighter than the rail with bobbins empty, or heavier than the rail with bobbins full, as it is bad when they balance each other. In that case the rail will run unsteadily, therefore varying in its motion all the back lash will allow, and will not wind well, nor make a smooth bobbin of roving. They should hang one way or the other. The speed of the front roller of a slubber may be from 180 to 250 revolutions a minute; the flyers from 675 to 750. Intermediates—front roll from 150 to 175, flyer from 880 to 925; fine speeder front roll from 120 to 140, and flyer from 1150 to 1250.

Heavy Sizing.

Heavy sizing is, in practice and effect, an effort to pass off goods on buyers, for what they are not. Heavy sizing aims at concealing, instead of revealing the structure of the fabric, giving to it the semblance of qualities it does not possess. On this ground alone, heavy sizing deserves condemnation. When it is remembered that the practice of heavy sizing and that of finishing cotton goods can only develop in an inverse ratio to each other, the question arises whether or not experience with these preparations justify their continued use?

In seeking an answer to this question, the aim should be not so much to inquire whether these additions to the size serve the alleged purpose, but, whether or not they affect the yarn favorably, as to durability, feel, etc. It is first necessary to understand the principle on which these preparations act. They usually contain salts as their basis, which, by attracting moisture from the air, keep the fabric moist and damp. Or, they contain ingredients which enable the china clay and other substances of the size to stick mechanically to the fibres of the cloth. In the first case, the abnormal addition of moisture to the tissue, serves to invite germs of mildew from the atmosphere, to lodge in and develop on the agreeably moist and comfortable hot bed provided for them. In the second case, the smoothness and the supple feel of the fibres are sacrificed. So far as mildew spots in textile fabrics are concerned, prevention is better than cure.

The addition of antiseptics has been looked upon as a preventative of mildew in heavy sized goods. Authorities agree, however, that the addition of deliquescent to sizing mixtures, increases the tendency to mildew. In view of this fact it is surprising what quantities of these substances some manufacturers put in their goods. The increased liability to mildew is only one of the evils resulting from heavy sizing of cotton goods. The basis of the bulk of the glutinous substances whether semi-solid or liquid, is starch of some sort; thus is one of the most nourishing alimentary substances wasted in the industries. The only good effect of heavy sizing, is on the side of the manufacturers of starch.

It must not be forgotten that a certain amount of starch sizing has long been a necessity in weaving, in printing, and finishing cotton goods. In falsifying his goods the manufacturer places himself at a disadvantage. In the first place the necessary confidence of the customer is lost; secondly, the art of weaving degenerates into an effort to give fibres the semblance of qualities they do not possess. With heavy sizing the liability of stains is greatly increased, and the period during which goods can be safely stored curtailed.

It has sometimes happened that a change in the methods of manufacture has been the means of further developing an industry. Even though the change should be in the nature of a falsification of goods, the end sufficiently justifies the means adopted to attain it. Such has been the change from the more costly linen to cotton fibres in the textile industry in the last half of the closing century. A similar argument can scarcely be urged in favor of the change from the light starch sizing to the heavy sizing with deliquescents and adhesives and like substances which flood the market.

WOOLEN DEPARTMENT.

Manufacturers of Wool Defined by General Appraisers.

PROTEST ON THE DUTY ON ICE WOOL SHAWLS OVERRULED.

The protest against the decision of the collector of customs, at New York, as to the rate of duties chargeable on ice wool shawls, imported by H. Oppenheimer, has been overruled by the general appraisers. The merchandise concerned was invoiced as ice wool squares, duty being assessed thereon at 44 cents a pound and 50 per cent. ad valorem, by virtue of paragraph 297 of the tariff act passed Aug. 28, 1894, at the rates provided in paragraph 392 of the act of Oct. 1, 1890.

Mr. Oppenheimer asserts that the merchandise is dutiable under schedule K, of the act of Aug. 28, 1894, at from 35 to 50 per cent. ad valorem, as shawls or wearing apparel wholly or in part of worsted or hair. Ice wool squares have long been known as ice wool shawls, knitted or crocheted from worsted yarn, spun from the fleece of the Angora goat. The yarn has long been known as ice wool yarn, or mohair. The sole question was whether or not shawls of mohair, spun into yarn by the worsted process, were dutiable as ruled, the last tariff act providing that the reduction of rates of duty for "manufactures of wool", shall take effect Jan. 1, 1895. Decision hinged on the meaning and scope of the general term "manufactures of wool."

In the London and Liverpool prices current mohair and alpaca fibres are classed with other wools. The tariff act of 1890, provides that all wools shall be divided in three classes. Included in class two is the hair of the goat. The duty on this class imported scoured, it states, shall be three times that if imported unwashed. Reference to a circular issued by the secretary of the treasury, Feb. 21, 1893, and the standard samples accompanying it, discloses the fact that wools from sheep of various countries, exhibit to the eye greater physical differences than appear to exist between the fleeces of some goats or crossbred alpacas, and some of the finest varieties of sheep's wool. In the tariff of 1890, Congress made no distinction in the rates of duty upon goods manufactured from these animal fibres, as it did in the act of 1883 and those of previous years. The distinction between woolen and worsted goods was abolished.

In paragraph 414, of the act of Oct. 1, it is provided that "All manufactures of silk, of which wool or the hair of the camel, goat or like animals is a component material, shall be classed as 'manufactures of wool.'" By act approved May 9, 1890, the secretary of the treasury was directed to classify as woolen cloths, all imports of worsted cloth, whether known under the name of worsted cloth, worsted, diagonal, or otherwise. On this the Supreme Court said: "He may not classify some worsteds as woolens, and others as not."

There are other reasons why the term "manufacturers of wool" should be taken as including the manufactured products described in schedule K. It is a well-known fact that importers, wholesalers and jobbers in woolen goods ordinarily make contracts for manufacture and delivery; and, unless there should happen a suspension of all trade and manufacturing, there must be large stocks of raw material, as well as finished goods, at the time of the enactment of a tariff, upon all of which imported goods, the high rates of duty, provided in the act of 1890, had been paid to the government. Holders would inevitably suffer loss by a reduction in the rates of duty on such goods.

The argument on which the decision is based, is thus discussed: "It would be strange legislation, and an erroneous construction of the act, as indicating the intent of Congress, to hold that it intended to discriminate in paragraph 297, between the rates of duty for various fabrics, which, in the several provisions of schedule K, are made subject to like rates. It would be renewing the contest for a discrimination between woolen cloth and worsted cloth, out of which so much litigation arose under former acts, and impose upon custom officers the duty of distinguishing the variety of fibres in manufactured goods, a task which neither the dealers, nor anybody else, except the manufacturers of the identical goods, could correctly execute. Some fabrics made from woolen yarn are hardly distinguishable by experts from others made of worsted yarns, because, since a comparatively recent period, Australian wools have been used in the manufacture of so-called worsted goods, the same being carded and combed, and the worsted yarn, spun with a light twist; so that in the finishing of the fabric, they resemble goods manufactured from yarns in which the combing process is not used. The term 'worsted' is said to have derived its origin from a village of that name in Norfolk, where the manufacture of such goods was first carried on. It must, therefore, have originally been an adjective describing the yarn spun from combed wool, in which the straight fibres were laid together and twisted, instead of being interlocked, as in yarn spun from carded wool.

"Among manufacturers of woolen machinery and fabrics, the term 'worsted system' is frequently applied to the arrangement of machinery for the production of so-called worsted goods, and, therefore, the term 'worsted' embraces all the yarn spun from the wool of the sheep, hair of the camel, goat, alpaca and other animals, where the fibre has been combed under the so-called 'worsted system.' A class of worsted fabrics known as 'serges' is used for coat linings, manufactured with a cotton warp and worsted yarn filling, and sold under the trade name of mohair and alpaca serges. In the lightest of these fabrics, the filling is composed of alpaca or mohair; and, as the prices grade downward, there is a mixture of English lustre wool, the quantity of the more costly fibres diminishing gradually, according to the price, until the entire filling is composed of this wool.

"In fine worsted fabrics embraced within the class known as women's dress goods, especially in fancy dress goods, are constantly found mixtures of various fibres and material. It could scarcely be expected that the custom officers should be able to distinguish from each other every variety of animal fibre found in finished fabrics, especially as in the process of manufacturing, the raw fibres have been more or less changed in physical appearance, by combing, twisting, dyeing and pressing, so that not only have the original exterior characteristics been erased, but the interior organic structure of the fibres can no longer be distinguished. After such changes, the possibility of a certain and correct classification of the fibres no longer exists. Scientists, with high-powered microscopes, might be able to express an opinion as to the origin of the same, but we have found instances where many wool dealers, of great experience, were unable to determine whether certain raw fibres were goats' hair or sheep's wool, and whether certain other fibres were goats' hair or calf hair."

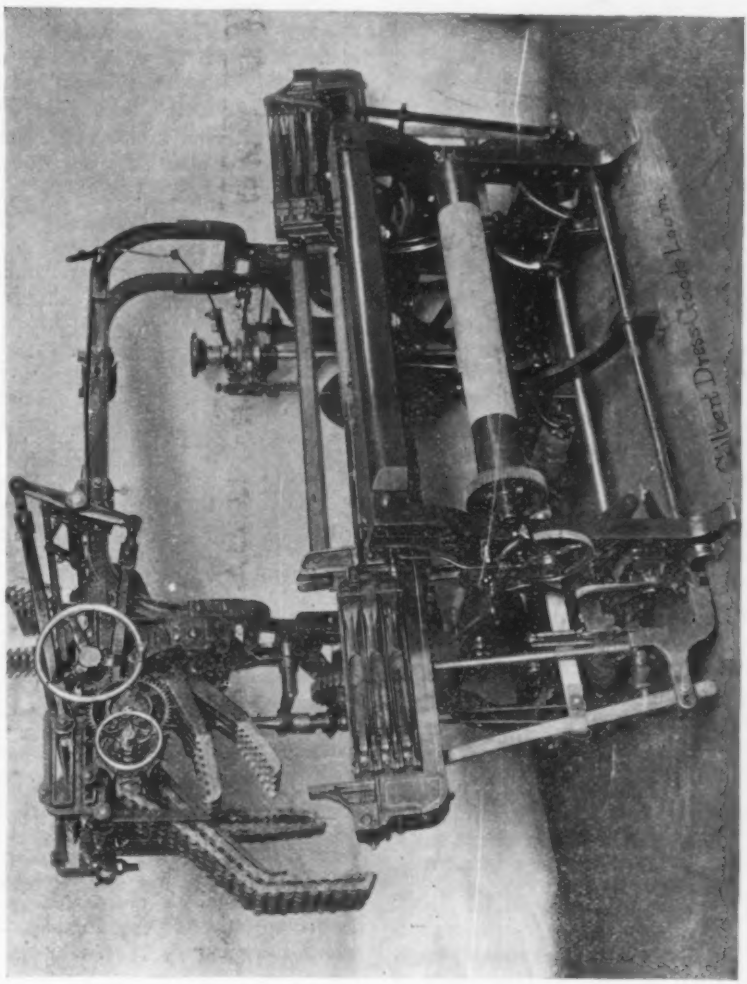
The New Gilbert Dress Goods Loom.

Dress goods manufacturers will be interested in the new loom built by the Gilbert Loom Company, of Worcester, and we take pleasure in furnishing our readers a cut and description. The Gilbert Company was established in 1866, and incorporated in 1894. The old Gilbert flannel and dress goods loom has a cam harness motion, and when drop boxes are used, the old and familiar tap-

pet motion is employed. To meet the increasing demand for a more convenient loom, they brought out this new full fancy dress goods loom, the Acme, which is up to date in every particular.

Manufacturers who use cam looms are weaving their goods on an open shed loom, consequently, their operatives are familiar with the open shed principle involved in this new machine. The loom is ordinarily built with 16 harnesses, and with 1×1, 2×2, 3×3, or 4×4 shuttle boxes, as desired. The harness and box pattern chains are on the same cylinder, consequently, they cannot get out of time with each other.

This loom is supplied with a simple pick finder, so the correct shed can be found instantly. The harness levelling device requires no manipulation of the clutch on the upright shaft, for the weaver simply depresses a foot treadle, and the harnesses come up level where the broken warp thread can be easily tied in. The movement of the harnesses is remarkably smooth and easy, and the



makers assert there are no harness skips.

A feature of this loom is the high speed at which it can be safely run. Those manufacturers who prefer tight and loose pulleys can have them. With the Gilbert friction pulley, this loom is built so as to halt on the pick, when stopped by the centre filling motion. This stopping on the pick is an important improvement in these days of high production and close competition, for the weaver does not have to stop to find the pick, because the harnesses have not wholly changed, and when the lay is pushed back, the shuttle can be thrown through the shed without loss of time.

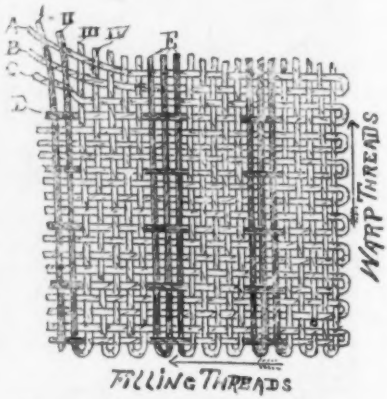
Manufacturers who are producing a class of goods demanding very even cloth, with no streaks, will be vitally interested in the Gilbert patent positive let-off, which lets off a definite amount of warp at each pick of the loom. This let-off, we are informed, will start with a full beam and run down to an empty one without attention from the weaver or fixer, also, that every inch of the goods will have the same number of picks.

This new loom has already proved itself a decided success. It is now running in some of the leading mills of the country; not one or two trial looms, but many of them. Some of the mills using the Gilbert "Acme" and harness motion are: The Sanford Mills, Sanford, Maine; the Troy Blanket Mills, Troy, N. H.; Agawam Company, Agawam, Mass.; Star Blanket Mills, Hubbardston, Mass.; J. D. Clark & Company, Rochdale, Mass.; Lakeside Mills, Worcester; Eagle Phœnix Company, Columbus, Ga.

The Gilbert Co. build looms for all kinds of fabrics — weaving tapestry, brussels, and velvet carpets, light and heavy worsted and woolens, plush, flannels, jeans, satinets, duck, ginghams, narrow fabrics, tapes, suspenders, ribbons, fire hose, cane seating, wire, etc.

Picking Out a Sample.

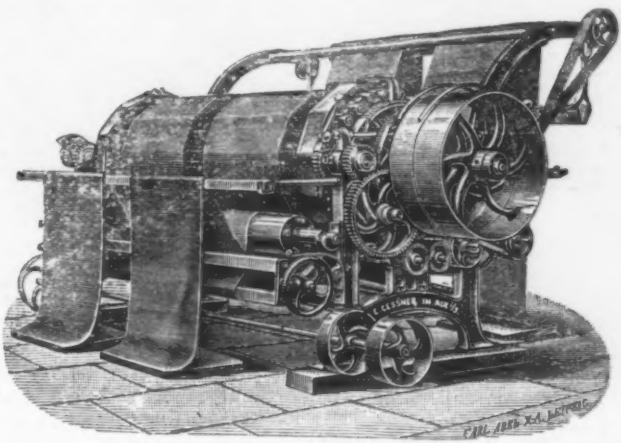
The fixer who would broaden his knowledge enough to advance, will find that about the first thing he must be familiar with, is the science of picking out a sample. There are several ways to do this. Some take an old nail and rip the the threads and make a botch. Others fix a sharpened piece of steel in a handle of wood and go to work right. They take a sample of the goods and loosen the threads at one corner as indicated in the cut. This drawing is of a piece of goods woven on the hairline style. The stripes can be seen.



The three threads of the wrap, marked E, form the stripe, as they are darker. In picking out, the thread A of the filling is found to be below I. and II., above III. and below IV. Then it repeats. Thread B is below I., II. and III. and above IV. C is below I. and II., above III. and below IV. D is above I. and II., below III. and above IV. This is the end of the repeat. These evolutions of the threads are marked up on the design paper. A riser as a dot, and a sinker as a blank. The weave ascertained, the next move is to see how many threads there are in the wrap and filling. Count the number in one inch and muliply by the width for the wrap, by 36 inches for the filling. Regulate the reed to suit.

The mode of ascertaining the weight to spin the yarns, the lay of the goods in loom, etc., all come with practice and study.

The average loom fixer is usually ambitous. He is, as a rule, reaching out for a higher rung on the ladder all the time. He may tinker and tinker at his looms for years and yet get little higher than the overall and the work bench unless he teaches himself something more than the art of making his looms run. Fixers have spare time and can easily study the art of designing, picking out and other matters pertaining to the textile business. Let the young man in the weave room acquire the science of picking out a piece of cloth, how to figure the weight of the yarns in it, etc., and he will soon begin to ascend the ladder.



ERNEST GESSNER'S NAPPING MACHINE.

Ernst Gessner's Napping Machine.

The valuable experience in building raising machinery which Ernst Gessner has gained since he invented his "double cylinder gig," in 1854, has recently led him to an important improvement in the teasling or napping process. He calls it the "Universal Cloth Napping Machine."

It is made in two sizes, and is supplied with 12 and 24 card clothed rollers (metal tubes), mounted in the hoop of the drum, and distributed in several series. The rollers are turned with the drum, also having an independent motion, distinct to each series. When one series of the rollers is working on the fabric forward, another is traveling backward. Uncommon evenness is thus obtained, and the necessity of guide rollers about the drum obviated, there being no one sided pull.

Even hard cotton goods receive a close nap by a single passage. The large napping surface secured for the fabric, which nearly encircles the drum, and the high speed possible with the machine, are among its other advantages. The speed of light or heavy cloth can be altered by cone pulleys with equal facility, and there is little waste. The cleaning of the napping rollers is accomplished by continuously acting rollers. The napping rollers are furnished with cards of steel wire; for wet raising, the cards are galvanized. A late improvement is a stretcher.

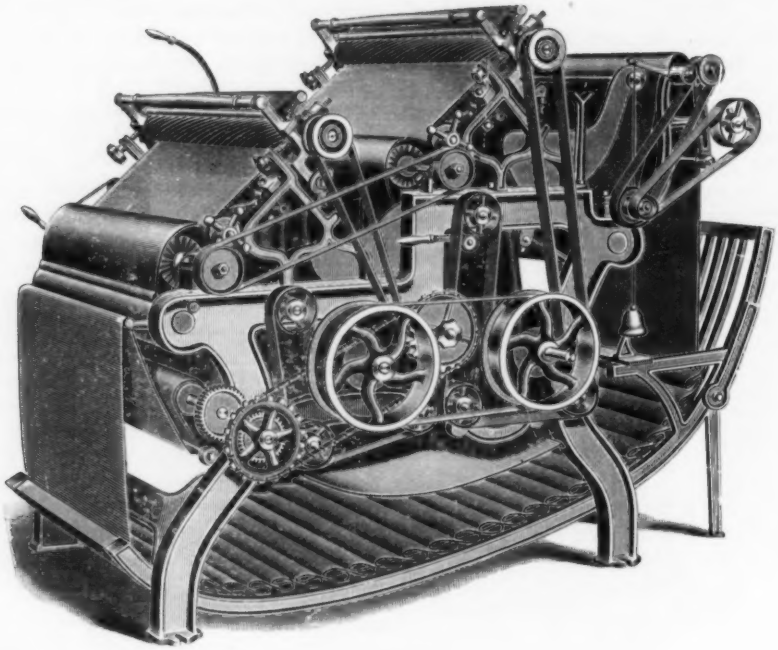
Here is one recent testimonial:

AMANA, IA., Sept. 4, 1894.

Mr. Ernst Gessner, Aue.

Dear Sir:—The longer we use and the better acquainted we get with your "Universal Cloth Napper," the more we are forced to acknowledge frankly the originality of the invention. A great many machines of this kind, use the

DOUBLE SHEAR.



Does the Work of Two Shears.

Saves the Price of One Man.

Saves One Half in Time.

This Shear costs less than two single shears; one good shear tender can operate it alone; it will pay for itself.

Illustrated Catalogue of all our Cloth Finishing Machinery sent free upon application.

Parks & Woolson Machine Co.,

SPRINGFIELD, VERMONT.

name "universal" to attract business, but your napper, in its construction and performance, is the only one that can truthfully claim that title.

Yours truly,

AMANA SOCIETY.

Charles A. Funk, 5136 Viola St., Philadelphia, is Mr. Gessner's American agent.

Finishing Kerseys.

For the Textile World.

Particular attention must be paid to the first process of finishing kerseys, to obtain good results, therefore it will pay every time to watch the burling closely. Smoothness is the requirement; there must be no bunches and knots. On the face all the knots must be carefully pulled to the surface and cut off; but not too close, so that in case the ends shrink and crawl back, there may not be too much of a space left vacant. The sewing is of minor importance, inasmuch as the close felt required on this, as well as all other classes of face goods, will obliterate any shortcomings in this respect.

Mispicks on the face can be cut, but if the fabric is made with a filling as well as a warp back, it will pay to sew in any mispicks which may happen to be on the back, for they are apt to leave a dark streak on the face. The fulling is the foundation of the finish, and while the gigging is certainly of the utmost importance, it must not be forgotten that unless the foundation for the gigging is properly laid in the fulling mill, there is little use in trying to get a good face. Felt is the main object, and this can only be obtained by milling. If the goods are run up as quick as possible, they are sure to be deficient in felt, and the finish will be a failure.

The soap required for these goods should be of sufficient body to last through the operation, and have vitality enough left to answer for the washing. It is rightfully held that the application of soap to the goods in the washer, after the heaviest dirt has been taken out, has a very softening effect, but this softening process will be just as effectual if begun in the mill by a well bodied soap.

The strength of the soap should be reduced to the lowest limit, for alkali not only hastens the fulling, which is not desirable, but has a tendency to make the goods feel harder than they should. It has been found by actual trial on a fair grade of kerseys, that a soap containing about five ounces of hard palm oil fulling soap, and six ounces of sal soda to the gallon, will give as good results as could be wished for. The calculations required for the fulling process are of such a range, on account of the different grades of stock, laying out, weight, etc., that they would lead too far to enumerate them. Suffice it to say that the first requirement is to find the clean weight of the goods, and then estimate the per cent. of loss likely to be sustained. After these are known, it should be an easy matter to find out what the work at the mill ought to be.

Assuming that all these details are correctly attended to, and that the goods are properly shrunk and felted, follow them to the washer. Plenty of warm water is the necessity then. As soon as the goods are run in the washer and the gates shut, apply about three barrels of warm water to a set of four pieces, and let them run 15 minutes. A rich, dirty lather will be the result, which, at the expiration of the stated time, should be drawn off. Then add three more barrels of warm water and let the run be 20 minutes, when the lather will be rich and white.

After this treatment, open the gates, draw off the soap, let on the cold water and rinse 45 minutes. There will then be no question as to the cleanness of the goods, and no trace of soap left. The goods are taken from the washer to the rolling and stretching machine, and are tightly and evenly rolled up and laid down flat till the next morning. They will then be found in the best condition for the gig. There are various patterns of stretching machines in use, but the old plate stretcher is yet, by far, the best for this purpose.

M. A. FURBUSH & SON MACHINE CO. PHILADELPHIA.
MAKERS OF WOOLEN MACHINERY.
THE MURKLAND INGRAIN CARPET LOOM.

Wool Pickers, Cards for Fine Wool and Mixed Yarn, Cards for Gray and Double Reeled Carpet Yarn, Cards for Coarse and Fine Worsted, with Breasts, Lickerin Attachments or Cylinders only, Cards for Shoddy and Felt, Hat Cards and Roll Cards, Card Clothing, Balling Heads and Reballing Machines for Worsted, Biamire Lap Feeds, Attachments for making Knickerbocker and Spotted Yarns, Vibrating Attachments for Ring Doffers, Rubbing Motions for Condenser Cards with Rolls only, Aprons only, or with Rolls and Aprons in Combination, Floor Grinders with Traversing Emery Wheels or Emery Cylinders, Side Drawing Spoolers, Card Stretchers and Turning Rests for Cards, Self Acting Mules, Hand Jacks, Ring Twisters for Spools or Bobbins and Attachments to same for making Looped Yarn, Dresser Spoolers for Wool or Worsted, Sectional Warp Mills, Universal Warp Mills, Beamers, Heck Stands and Creels, Warp Dressers with two or four Copper Cylinders, Jack Bobbin Winders, Looms for making Carpets, Smyrna Rugs, Rug Weft, Blankets, Repps, Table Covers, Paper-Makers' Felt and Light Looms for Woolen Goods, Heddle Frames, Reels for Dye Tubs, Teasel Gigs.

THE American Napping Machine Co.,

Owns the Principal Patents

on Napping Machines, representing the latest French, English and American Patents.

Machines on exhibition and samples napped on application to any of the following offices:

DAVIS & FURBER MACHINE CO., Builders and Selling Agents, North Andover, Mass.

GEO. S. HARWOOD & SON, 7 Water Street, Boston.

C. J. JONES, Salesman, Mascher Street abv. Lehigh Avenue, Philadelphia.

H. H. HEAP, Treasurer and General Manager, Williamstown, Mass.

Davis & Furber Machine Co., North Andover, Mass.
WOOLEN MACHINERY.

American Soap & Washoline Co.,

Manufacturers of

Textile Soaps

For use in the Manufacture of

Cotton, Linen, Silk, Woolen, Worsted, Hosiery and Flannel Goods, also Soaps for washing Paper Makers' Felts.

We make a specialty of **Washoline**, a powdered soap for use in textile mills, which is meeting with decided success in many departments.

Office and Factory,

140-180 Central Ave., Cohoes, N.Y., U. S. A.

THOS. C. KELLOGG,

SKANEATELES, N. Y.

Dealer in and Grower of

TEASELS.

Clipped and packed to any desired size.

Teasels are grown, cured and packed on own premises.

New York Office, 96 & 98 Reade St.

A. H. KELLOGG, Manager.

Correspondence solicited. Samples free sent by mail upon application. Write for Price List No. 82.

McLAUGHLIN BROS.,

TEASELS,

SKANEATELES FALLS, N. Y.

Offer the best quality medium sizes, most evenly assorted, at the lowest prices in the market. Satisfaction guaranteed. Business established in 1832.

WM. W. KELLOGG,

SKANEATELES, N. Y.

AMERICAN TEASELS

High Grades a specialty.

Sample Orders Solicited.

For a good finish on kerseys it is necessary not only to accomplish the fulling slowly, but the subsequent processes as well. The goods should be left in a moist state at least three days, and paradoxical as it may seem, they in this way acquire a more substantial feeling. The gigging process is of the utmost importance. Old work to begin with, and a gradual increase to sharper work is necessary, for all the fibres are required for the face, and as few as possible should be wasted.

When the gigging is about half finished, the goods are taken to the shear and given a thorough cropping. They are then returned to the gig, and the final touches given them. It is sometimes advisable to have fine goods undergo a second cropping, when great care must be used not to shear them too low. After gigging, the goods are returned to the washer for speck dyeing, and from there they go to the wet gig.

The wet gig part of the operation is usually a fruitful source of that greatest fault in kerseys, "streakiness." The reason is that the condition of the slats is generally such that streaks are the inevitable result. To overcome this evil the best thing is to get wood fibre brush slats, and even then there is a tendency to streaks, if the goods are stinted in runs. At least four runs should be given them, and plenty of water should be at hand. If the water is run into the trough at the bottom, instead of over the goods by means of a perforated pipe, as is usual, many streaks can be avoided.

When properly wet gigged, they are tightly rolle up and stood on end over night. Next morning they are unrolled, carefully extracted and dried. The dryer should be supplied with a brush, so that the fibres may be laid in the proper way before they are dried, for they are apt to remain as dried. A thorough steam brushing should precede the shearing, which, on account of the cropping the goods received, is not an elaborate process. Still, they must have plenty of runs to ensure absolute evenness.

After inspection, and specking if necessary, they are pressed face down, in order to obtain as much lustre as possible. A slight steam brushing will bring them to the proper state for the market.

This treatment is what is termed the water finish, and, of course, the goods will be materially improved by being steamed. The steaming must take place between the gigging and speck dyeing, otherwise the process need not differ. The steaming process has been explained at length in these columns.

Shoddy or Flocks.

The trouble some manufacturers are having from the use of too much shoddy or flocks, has made them wary in their use. A few words may prevent other cloth makers from falling into the same hole.

It is known that a little shoddy or flocks does not injure a piece of goods materially, but over use is the quickest way for a manufacturer to kill himself. During the heavy weight season, some kerseys were made, in which the original fabric weighed only about twenty ounces, the required weight being twenty-eight. To make up this deficiency in weight, the goods were loaded with flocks. When they were made up and worn out in the rain, the water loosened the flocks, and it fell into the space between the cloth and the lining, and the coat was transformed from a 28-ounce fabric into a light weight.

The bright side of the case is, that as it approaches spring, the buyer's coat gets lighter to suit the weather. Some samples of kerseys have been shown this season, which are flocked rather heavy. If the manufacturers wish to retain business, they must change their policy.

INSINGER & CO., Manufacturers of

LOOMS for RIBBONS, TAPE, BINDING, GORING, SUSPENDER, FRINGES, ETC.

JACQUARD MACHINES for SHAFTS, and HARNESS LOOMS.

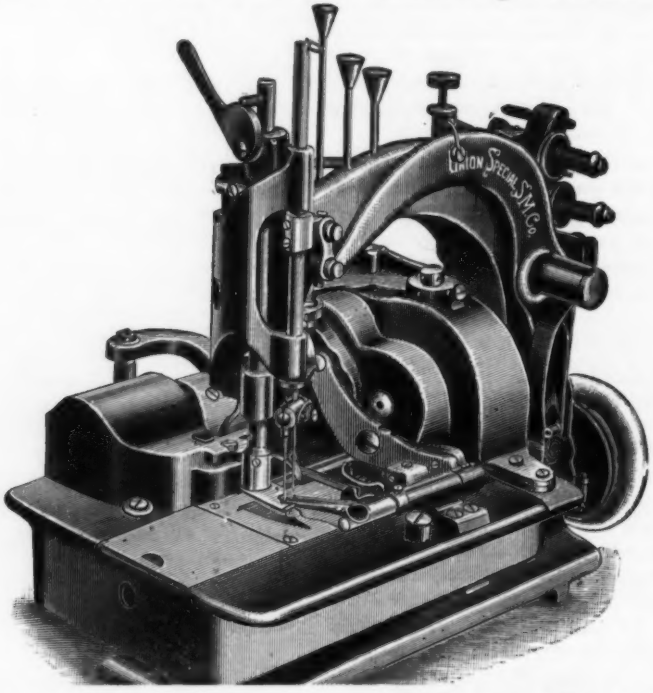
Lathes or Rattons, Straight or Circular Shuttles, 2, 3 or 4 banks.

Nos. 15 to 30 E. Canal St., PHILADELPHIA, near 1033 N. Front St

SCOTT & WILLIAMS,

ESTABLISHED 1865.

Builders of all kinds of Knitting Machinery.



New Selvedging Bar Stitch Machine.

FOUR PROCESSES AT ONCE.

Selvedges the Edge, makes and attaches the Trimming and inserts Ribbon at one operation.

RUNS AT SPEED OF 2000 STITCHES PER MINUTE.

The United States Circuit Court for the Eastern District of Pennsylvania has recently issued a decree sustaining our Patents in this machine and on the Trimming made by it, and has granted an injunction against manufacturers in Philadelphia who were using an infringing machine.

The attention of the trade is therefore directed to this decision, as we shall proceed promptly against any others who violate our rights by the manufacture, sale, or use of infringing machine or trimmings.

Patented, United States, Dec. 25, 1888.
Patented, United States, Aug. 20, 1889.
Patented, England, January 1, 1889.
Patented, United States, Sept. 3, 1889.
Patented, United States, Nov. 26, 1889.
Patented, Switzerland, May 17, 1889.

Office: 2077 East Cumberland St., Philadelphia.

SHOWROOMS: 6th and Arch Sts., Philadelphia, Pa

KNITTING DEPARTMENT.

The Knit Goods Situation.

"We cannot complain of February trade as a whole," say nearly all the wholesalers and jobbers. This, in spite of the fact that business the last week of the month was flat. The cold snap about the 15th was not such a bad thing after all, for while it temporarily upset spring trade, brief as it was, it enabled many dealers to clear out winter weights which were being put away on the highest shelving.

Several concerns report sales nearly up to those of February, 1893, the first six months of which year were the most prosperous in the history of the trade. The incoming of March brought calls for samples from big retail houses which had previously staved off drummers. The middle of the week is ordinarily the lightest time with jobbers, yet the last two days of February saw many packing rooms crowded to the brim.

There continues to be more or less shading of prices. Not until there is the semblance of firmness in tone may many large orders be expected. The turn once made, the lowness of prices would give promise of stability that would otherwise be lacking.

Fleece lined goods are more popular than ever and women's ribbed goods have about driven flat underwear out of the market. This, of course, because of the close fitting qualities of the ribbed wear. Men, however, continue to refuse ribbed goods. Recent improvements in seaming have caused ready demand for garments thus perfected. The new flat seam is the neatest thing in the way of edge treatment yet devised and will make an extra cut in the trade on full-fashioned goods. Other specialties on which there is particular call just now are golfing stockings and bicycle hose.

Jobbers who handle underwear and hosiery exclusively, find new England trade especially backward. Their business has been principally in the West, which, owing to distance, is obliged to order considerably in advance. Of course a large slice of this trade goes to big houses in Chicago and St. Louis, but it is a fact that Western concerns as a rule are unwilling to handle goods on as small a margin of profit as prevails in the East.

The demand from the Populistic prairies, where socks, according to humorists, are not considered indispensable, show what must follow from the effete East. A large Eastern jobber said on the last day of February:

"Not for ten years have the prospects of the knit goods jobbers been so encouraging. Late indications unmistakably show that jobbers are more than holding their own in the struggle against the commission houses and direct selling. There have been times during the last year and a half when I have been in doubt as to the outcome. Business conditions have been such that manufacturers have been put at their wits ends to keep their mills in operation, and would furnish any man with samples who could place a case of goods. Commission houses are as numerous as ever, but their business is narrowing to jobbing houses of second and third magnitude, many of which do not pay cash. Experience has shown manufacturers the desirability, if not the actual necessity, of middlemen, such as the large jobbers, whose money follows their orders. To be sure, we can't see much money in the hands of the people, but conditions are infinitely more favorable than a year ago and values in woolen goods are to-day simply magnificent. Fine goods are now being offered at prices which two years ago would have been considered impossible."

The advance which is being made

in the production of fine goods is becoming more apparent every day. Boston jobbers are now asking a considerable premium on certain lines of domestic hosiery which they buy as low or lower than foreign goods. Notwithstanding the progress that is being made on this side of the water on high grades, it will be two or three years, say jobbers, before production from certain favorite American mills will be able to keep pace with demand.

Reference to the Textile Advance News for the past month gives a showing similar to that of January. Only two mills are reported as having shut down and one of those for repairs and inventory. Against this fully a score have resumed operations and the usual number of new plants are announced. The question is of profit—not activity.

The backwardness of deliveries from Chemnitz promises to play a part in the maintenance of prices. Foreign underwear is active and while margins are close, the faces of selling agents wear a satisfied expression.

Mill Management.

BY "OLD SUPT."

Continued from February.

In the last article, I gave a simple method of weighing yarn, showing incidentally the necessity of having a daily report of the yarn knit and the number of rolls of cloth made on the cylinders of various sizes. Such tally prevents the leaving over of extra rolls when changing off, and the knitting of unnecessary sizes resulting in great waste. In some mills the frames are run to knit the yarn that is made every day, seemingly with the sole idea of preventing accumulation without any regard to size. A first class mill should have extra cylinders of different sizes, so that when there is an overproduction of any size, such frames may be stopped and others started. The office clerk should know how many dozens of each size and how many rolls of cloth are needed to fill requirements, and by keeping a daily record and giving the knitter a list of wants every morning, the waste of extras may be eliminated.

I append a daily report of my own, and should be pleased to receive suggestions for improving it.

The form of the report may be increased in size, to suit the requirements of the mill. A glance will tell of its correctness. If it is thought necessary to confirm the knitter's report the cutter, when he receives a roll, should fill a blank form the same as that of the knitter except the heading. The two may well be printed together with a perforated line between, making detachment easy. The knitter and cutter might have folding slates marked alike, on which tallies could be kept during the day. In this way it is no trouble to tell if the knitter is ahead of the cutter. Most mills trust entirely to the patent check system of books, which give the number of dozens of looping, seaming, etc., but cannot put a stop to wrong weights, the making of extra waste or extra rolls that may have been entered by mistake. I originated the submitted form, and found it to work like a charm.

It has still another advantage; the correct size of garments is taken from the right size cylinder, consequently no boarding of goods up and down is necessary. There is objection to the boarding in itself. A fine, all wool garment, if carefully washed, will retain its size until nearly worn out. If it has been boarded up a size or two, it will shrink so much as to displease the wearer.

The daily form for the cutting room is shown in accompanying blank.

An item of the greatest importance conveniently shown by this report, is the amount of waste made by the cutters, for the difference between the weight of cloth knit and weight of goods cut gives it. The waste some cutters make is ruinous. Eternal vigilance is the price of good cutting. Waste in cutting is also made in winding and knitting, but as I have made mention of these rooms, I will pass them now, simply remarking that winding is thought

KNITTING ROOM DAILY REPORT. FEB. 6, 1895.

Size of Cylinders. 12	13	14	15	16	17	18	19	20	No. Rolls.	Weight of Rolls. 12	13	14	15	16	17	18	19	20	No. lbs.
	1		1	1	1	1	1	1	7		16		18	20	22	27	30	33	166
				1	1	1	1	1	5					20	22	28	31	32	133
					1	1	1		3						22	28	31		81
						1			1							27			27
Rolls, 1			1	2	3	4	3	2	16		1		1	2	3	4	3	2	407

JOHN ALLWRIGHT, FOREMAN.

CUTTING ROOM DAILY RECEIPT. RECEIVED FEB. 6, 1895.

Size of Cylinder. 12	13	14	15	16	17	18	19	20	No. Rolls.	Weight of Rolls. 12	13	14	15	16	17	18	19	20	No. lbs.

CUTTING ROOM. FEB. 3, 1895.

Abbreviations: Cylinders, Cr.; Dozens, Doz.; Weight, lbs.; Shirts, B.; Drawers, Dr.; Vests, V.; Pants, P.; Sleeves, S.

Cr. 16 Doz. B	Doz. D	lbs.	Cr. 17. Doz. B	Doz. D	lbs.	Cr. 18. Doz. B	Doz. D	lbs.	Cr. 19. Doz. B	Doz. D	lbs.	Cr. 20. Doz. B	Doz. D	lbs.	Totals. No. Cr.	B	D	lbs.
			8		64	12		120	7		70	4		44	20	4	2	64
				6	42		12	96		5	45		2	20	19	7	5	115
						9		90							18	21	17	346
							5	40							17	8	6	106
			8	6	106	21	17	346	7	5	115	4	2	64	Total	40	30	631

Doz. V.	Doz. P.	lbs.	Doz. V.	Doz. P.	lbs.	Doz. V.	Doz. P.	lbs.	Doz. V.	Doz. P.	lbs.	Doz. V.	Doz. P.	lbs.	No. Cr.	Doz. V.	Doz. P.	lbs.
3		18	6		42	9		63							18	9	5	93
	3	17		6	36		5	30							17	6	6	78
															16	3	3	35
3	3	35	6	6	78	9	5	93							Total	18	14	206
																		631
																		837

JOHN DOE, FOREMAN.

It will be seen, no notice is taken of the sleeves on this sheet, for this reason:—they are always cut out of the small Cr., 13 or 14 inch, and can be set without any waste, but the S. as abbreviated, may be used at Cr. 16, if wanted, instead of B and D.

of little comparative importance, when it is in reality one of the most important.

It is a great mistake not to stop knitting frames long enough to clear away the lint and dirt. Some knitters have a paper box cover, palm leaf fan or wooden frame in the form of a whitewash brush, with a piece of belting tacked to it which they waft up and down, creating enough wind to send the lint and dirt flying. The lint if it comes in contact with the yarn, will surely find its way to the eye of the feed guide, so clogging it as to make drop stitches, holes, broken threads and the coming off of quarters, if quarter savers are not attached to the frames. Such coming in the middle of a pattern, all the cutter might be able to get out would be a pair of sleeves. Frames should be stopped while cleaning is going on. They may be carefully wiped off while they are running, but care should be taken in shaking dusters to hold them away from the yarn.

The speed of frames from early times up to the present date will be considered in my next.

(To be continued.)

Auxiliaries for Automatic Knitting Machines.

By the ingenuity and skill of the American inventor, this country is able to say truthfully that it is in advance of any other on knitting machines, and appliances for the manufacturing of hosiery, and by hosiery, I mean the term in its broad sense.

Americans can produce from two to four and one-half dozen stockings a day on one machine, and one attendant can run from four to fifteen such machines at a time, and produce passable work. There is, perhaps, a chance for some one to invent a device that will insure a uniform length of stocking, knitted on the same machine, or another machine of the same pattern. At first sight, this would seem to the uninitiated an easy matter. It could be done by the pattern chain, changing the machine at a given number of revolutions, were it possible to get yarn of the same size. This and some badly devised take-up arrangements are two fruitful sources of trouble for machine builders. As to auxiliaries, while the take-up may be called one, what I particularly meant was, aids to the completion of the stocking, such as the machine for welting tops, and the looping machine for closing toes.

I will here try to explain more fully, regarding the last mentioned machine which I referred to in the November issue of the TEXTILE WORLD. The device is a cylinder, with vertical points, which can be revolved at the rate of fifteen hundred a minute. At every movement of these points, they are brought in contact with a vertically reciprocating sewing machine needle, which, of course, makes a stitch. The cylinders are interchangeable, and while operators are transfering or running on the stockings the machine operator is closing a stocking that has been run on, etc.

The capacity of the machine is limited only by the number of stockings any given number of operators may run on the transfer cups or cylinders. This is not new, as the writer did the same thing in 1875. The trade then was not far enough advanced to warrant the expense of taking the time necessary to produce a machine that would do the work fast enough to make it of much advantage.

The machine is so constructed as to run rapidly, and not overlap any vertical point—advantages not embodied in any machine the writer has yet seen.

GIBBONS FRAME.

An Improved Rib Knitter.

McMichael & Wildman's latest improved rib knitting machine is shown in the accompanying illustration. It possesses certain special points of excellence and individuality which are outlined herewith.

The sectional cam ring of the machine consists of the arrangement of the cam ring into a number of sections corresponding with the number of feeds on the machine, each section holding all

the cylinder cams of a feed. These sections can be easily taken off, thus exposing for their entire length all the needles covered by the section, or, if desired, all the sections may be displaced at one time, a great convenience when cleaning the machine.

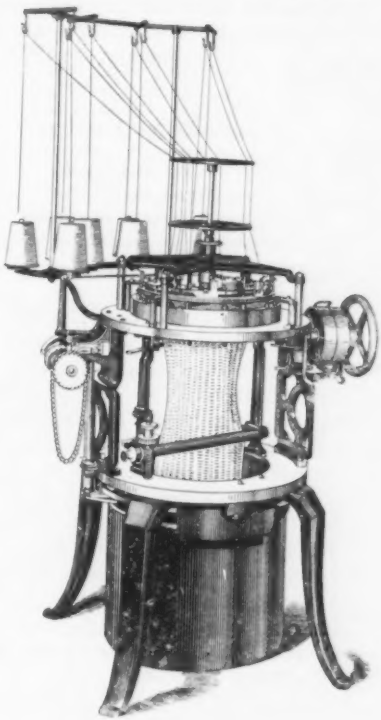
The sectional cap is similarly divided into sections, each section containing all the dial cams, also the yarn carrier for the feed. The taking off of the section does not in any way effect the adjustment of the guide or carrier. These features, in addition to greatly simplifying the replacing of damaged needles, makes it possible to thoroughly clean cylinder and dial without taking them out of the machine, in fact without effecting the adjustment of any of the parts or even pressing the work off the the needles.

Another advantage is the saving of the cylinder and dial which are frequently seriously damaged by forcing a broken needle through the cams until it comes opposite one of the open spaces usually provided for taking out broken needles. In case of a broken needle it is only necessary to lift off the section covering that needle, and it can be replaced without turning the machine. It is not necessary that the sections shall be taken off for every damaged needle, as the usual open spaces are also provided. We understand that McMichael & Wildman own exclusive patents, on these important features.

All machines of this make are provided with special guard cams preventing the fabric from bunching up on the needles and the cylinder needles from pressing out in front of the guides.

On this machine the bobbins are stationary, and the work revolves. The builders claim superiority for this type of machines arguing that with revolving bobbins and stationary work, the head is subjected to immense strain and wear by the heavy weight of the bobbins and yarn, frequently unevenly distributed and necessarily reducing the life of the machine. With rapidly revolving bobbins the attendant cannot detect faulty winding, or false ends on cones or bobbins. With work stationary the attendant can watch only one side of the fabric, and many a yard is wasted by a damaged needle, it happening on the back half of the machine, where the attendant cannot see it.

The tension rolls are driven by a worm gear, without ratchets, cams or weights,



A NEW RIB KNITTER.

and can be adjusted to the finest degree and no further attention is required except for great changes of material or stitch; it responds to variations in the yarn, and imparts an even tension on the fabric. The automatic movement of the cams is extremely simple and positive and is controlled by one chain on which there is no wear. All parts are interchangeable, and every machine is guaranteed. The construction permits the highest speed.

These machines are adapted for making all classes of ribbed fabric that can be manufactured on a circular machine, and of any material that can be knit on

latch needles. They will make plain, half cardigan and full cardigan stitch, changing from one to the other automatically. McMichael & Wildman build sleevers to match any fabric made on these large machines, also all sizes of machines suitable for making ribbed hosiery. The National Automatic Knitter Co., 724, 726, 728 Chestnut St., Philadelphia, is sole selling agent and will show the machines in operation at its office.

Fixing Knitting Machines.

THE SEAMLESS KNITTER.

The seamless knitter of to-day is a simple machine, yet capable of producing splendid goods. At first glance there do not seem to be many parts liable to get out of order. After the machine has been run a time, however, the cams become worn and require attention. We will first consider the setting up and operation of a new machine, and afterward look at some causes of bad work in an old one. The first thing in setting up a new machine is to see that the table on which it is to run is of the proper height—that is from three feet, to three feet six inches; also that the driving shaft beneath runs at such speed that the driving pulleys are not too small; they should not be less than six inches in diameter.

A great saving of belting would result if the pulleys were eight or ten inches in diameter as the belts could be run more loosely. The machines should be speeded to run from 75 to 100 revolutions a minute; some manufacturers run them at a higher speed. The machine is securely bolted to the table, and the stop-motion fastened to the floor in its proper place, directly under the lever on which it works. The exact place on the floor for the stop-motion should be determined by plumbing with a plumb-bob. The set-up cup fastened to its little table is for half hose, or fastened to the machine table if for women's stockings so that the operators can do their own setting up of ribs on machine cylinders. The belt is put on, and the machine well cleaned of grease which the builders put on to keep the machine from rusting while in transit. The sinker ring or hold-down attachment should be taken off and the cylinder and the sinkers cleaned separately.

Care should be taken in replacing them that the marked sinkers are put in the proper places, the circumference being divided at the right distances. Some yarn should now be used—almost any kind will answer to clean the needles and adjust the stitch. After a small piece has been knit it can be taken off, a rib picked on the cylinder by stitch and the cylinder with the rib on the needles placed in the machine again. The yarn tension and take-up spring should next be adjusted to take up the slack yarn while knitting the heel and toe and the step on the stop-motion set to stop the machine the right length for the leg. Proceed then to knit the leg. After the proper length is reached half the needles are raised, throwing them out of action, and the heel is knit on the remaining half of the needles. An extra thread is generally used in the heel and toe to reinforce them. In knitting the heel and toe care must be taken to have the right and left stitch cams draw the same length of stitch. There is no way of adjusting stitch cams in this class of machines, except by grinding the lowest cam. After knitting the heel all the needles are put in action and the foot knit. Another step on the stop-motion is set for the length of the foot which once knit, the same process employed in knitting the toe as was used in knitting the heel, although in some mills the toe is knit on the opposite half of the needles from the heel, bringing the looping or closing on the bottom of the foot, instead of on the top as when heel and toe are knit on the same half of needles. After the toe is finished the needles are all put in action again and a few courses knit so as to protect the course (on the looper points) from raveling out. This is the process of knitting a half hose on a new machine.

I will now try to explain some of the causes of bad work on machines which

have been running some time. For this purpose take a machine running on wool goods. Suppose the machine makes holes and drop-stitches, breaks needles and is generally out of order. First drop-stitches. They are sometimes caused by bad needles, sometimes by improper adjustments of the yarn carrier. When caused by bad needles it can readily be detected, as they generally appear in a vertical line; when caused by faulty adjustment of the yarn carrier they appear sometime on one side of the stocking, sometimes on the other—rarely in a vertical line. Bad needles should be replaced, the best being the cheapest.

Yarn carriers should be set close to the needles and high enough to put the yarn well up in the hook of the needles. If set too low the yarn is liable to go under instead of over the latch. Also to make holes by reason of the latches closing upon the yarn and cutting it. The carrier should also act as a guard to prevent closing the latches prematurely. There are many causes for holes. Some of them are: too tight tension, too much weight on stocking, bad needles, carrier too low, sinkers with a groove worn in, rough sinkers, the right or running cam worn and the left cam drawing a longer stitch and the stitch cams drawing too many stitches at once. Cams should be pointed on wool work and as wide as one-eighth inch on cotton work. Breaking needles are due principally to rough cams, especially the centre cam. The yarn carrier, if not properly set, will break latches. Eternal vigilance on the part of the overseer, coupled with knowledge of machine and stock, ensures the manufacturer good work.

KNITTER.

Tension Device for Warp Knitting Machines.

Among the many patents for improvements on warp knitting machines, is one with tension rollers mounted on the transverse carriages of the machine. That is, the threads are caused to pass from the ordinary bobbin on the transverse carriages of the machine, beneath the tension roller, which is of such a weight as to be raised by the threads which pass underneath it.

On the frame of the transverse carriages are formed arms or brackets which are provided with slots, and act as supports for the tension rollers, allowing them to be suddenly raised as the threads are drawn on the needles, and then to remain temporarily suspended on the threads, for the purpose of taking up the looseness of the last named.

Thus the irregular impulses given to the threads are compensated by the tension roller, instead of occasioning sudden, intermittent drawing off from the bobbins.

Fobroline Yarn.

The United States Consul at Bradford, has submitted to the State Department a report which is of great interest to spinners in this country. It describes a method just put in practice in England, for producing a yarn, known as "Fobroline."

It is manufactured from what has hitherto been regarded as useless waste, viz: the noils made in hemp and flax spinning works. This waste, thrown off in enormous quantities, for a time found a sale for paper making, but was finally displaced by wood pulp. By the new process of working this is now made into a remarkably strong, even yarn, which is being largely used, among other things, for the warp of fine carpets, having been found better and cheaper than cotton yarn.

It is hoped that a full description of this process can be given in the next issue, as it is of such vital importance to the cotton spinner.

—A leading London dealer in men's furnishings, believes that Americans are shallow and showy, basing that notion on the national indifference to fine underwear. He says: "Americans will come here and buy elegant neckwear and fine gloves. Everything that is to be seen must look well, but when it comes to buying underwear or things that are not seen, nine out of ten Americans don't care what they have. I have had Americans worth millions come in and pay liberally for fine externals, and then insist upon getting a lower grade of underwear than I keep."

POWER DEPARTMENT.

O. R. YOUNG, M. E., Editor.

Machine Shop Reminiscences.

II.

HOW WE LEARNED THE TRADE.

While we are on the subject of drills, it may be well to say that I have always found it good practice when there is a hard piece to drill, not to use any oil, for the drill will catch the chip much easier. If in working without oil the work seems still too hard to cut, use plenty of turpentine, make the drill thick on the back of the cut and thin on the point; do not draw the temper any, but keep it sharp as you can and you will find you can work through a very hard piece of steel.

It may seem useless for me to say, be sure you run your drill the right way, but I am led to make the remark by an incident which came under my notice in one of the largest machine shops in the State. One of the strong, quick foremen which we spoke of in our last article, came in one day for suggestions regarding the drilling a piece of steel, and they were given him practically as stated here. We had just moved into a new shop and some of the tools were not belted. It fell to his lot to use a speed lathe which had not, and as the belt man was not handy, he belted the machine himself and started to drill the steel. In a few moments he came along with the complaint that my plan was "no good," saying that he couldn't cut anything with it. Being somewhat surprised, I took the drill and sure enough the edges were completely gone. I gave him another drill and he started in afresh. In a few moments back he came with the drill in the same condition as the other. It seemed about time to look at the lathe, and my surprise can be imagined, when I say I found he had belted the machine to *run the wrong way*. And yet he was foreman of that particular department, so you can see that the caution is not so ridiculous as it might seem, and the apprentice will find, before he has served his time, that even the foreman doesn't "know it all."

The beginner will find, when he drills a hole, that when the point of the drill comes through, if the hole is large, a small portion of it will be very near the size of the drill, so when given a piece of work to be drilled in a speed lathe and the hole is required to be "fair" with the sides, we use what is called a "backer." This consists of a taper shank fitting nicely into the spindle with the end a right angles to line of centres, and it is good practice to look at this backer before starting on the work, to be sure it is true. If found to be "out," put it in the live spindle and with a diamond hand tool true it up.

If your work is round, we use what in machine shop parlance is called a "crotch," which consists of a taper shank as above noted, but instead of the right angle end there is used a V shaped slot which should have both sides true with the central line of the spindle. There should be different sizes of these V shaped crotches, as the work in no case should touch the apex or bottom of the V.

When starting a drill on round work, use as short a drill as possible, for a long drill is apt to leave the line of centres and will come out anywhere but in

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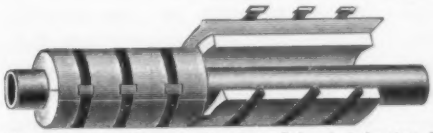

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the right place. If the piece to be drilled is short, it is well to hold it vertical, as you can more easily see how the drill has started.

When it is required to drill a deep hole, say two or three inches and have it come true with the rest of the piece, we usually lay out a centre at each end of the hub or projection with a surface gauge, the use of which will be more fully explained later. Make a prick punch mark true with the gauge line, then draw a circle with the dividers, say 1-32 larger than the hole to be drilled, also one or two smaller than the hole so that it may be known before reaching full size that your drill is in the centre. After drawing the circles put in a deep centre mark which will hold your drill to its work. It is evident that the circles made with the dividers before the centre mark was made will be true with the liners made by the gauge. Try your centres and be sure they run true; slide the tail stock up close to the live one, tighten the former to the bed and run the centres as close as you can without touching to see if they are in line as they must be to secure good results. Having settled this point, drill a hole half way through each end and you will come very near meeting in the centre with a hole true enough for ordinary work. There are ways for obtaining greater accuracy which will be more fully explained, but any common work may be handled satisfactorily in this way.

For countersinking with a flat drill, as is often done, you will avoid all chatter and cut smoother if you round one side of the drill so it will cut with only one side, give as little clearance as possible, run slow and use plenty of oil.

If you wish to drill a number of holes to a certain depth or countersink them, place a block under the handle of your lathe, remove it until the handle has passed by then replace it and it will stop your lathe at the same place every time.

The twist drill is used in nearly every shop in the country and its use has become so general that machinists have come to gauge almost at sight what speed to run different sized drills on various kinds of work, but that must be learned by experience, for no set of tables ever covers the ground half so well as a little good judgment.

Speaking of judgment in a machine shop reminds me of one of the most amusing instances of its use I think there is in the country to-day. Some years ago I was working in a town near Boston, in a shop for general job work, and by that I mean any work from sharpening a pair of skates to boring out an engine cylinder.

We had a boring mill there which was "fearfully and wonderfully" constructed. The bed table and spindle I

remember were made of metal, but the rest I am equally positive was once growing in the woods. This machine was called the "barometer," from the fact that it was full as useful in that capacity as any other, for in dry weather it would leave one kind of a hole, but in wet weather you could get most any kind, owing to the swelling and shrinking. One day I started in to bore out a jack gear but could not get a straight hole and called the owner's attention to the fact. He scratched his beard in a meditative sort of way and started down cellar, leaving me with the machine. After a few moments he reappeared, examined one of the posts and taking a sledge hammer knocked it about half an inch to the north. We started a chip and found we could get a fairly straight hole. He called my attention to the fact that it required judgment to be a machinist, and explained that there were marks on the posts to correspond with the amount of water in the cellar, and that any-one using a little judgment could tell how to drive the posts to obtain a straight hole so long as they knew the amount of water in the cellar, which furnishes one of the best illustrations of the need of judgment which has ever come under my observation.

The rest of our tools in this particular shop were about the same calibre, every piece of work in the shop was made to conform to our one twist drill, and we only brought out our seven-eighths reamer on state occasions. The old chain planer was the owner's pride; a machine working on the go-as-you-please plan. We used to set a piece of work, then lay round waiting for the tool to reach it. When it did there was a jump, and across the work it would go, taking any size chip which its fancy might dictate, and yet some people think shops fitted up in this manner should be able to compete with those better equipped. It can't be done; a shop first and foremost must have good tools.

—The "H. H. H." campaign is waxing warm in the South, which mysterious symbols being translated signify "hog, hominy and hay."

What Constitutes a Smoke Nuisance.

"Notwithstanding the continued efforts of inventors, and the assistance afforded them by a certain section of the investing public, we do not appear to be appreciably nearer a satisfactory solution of the smoke-prevention problem than we were a dozen years since," says the Mechanical World of England. "At the same time, it is desirable for steam users to know what latitude they are allowed before action can be taken against them. A few years ago, Mr. Le Neve Foster, in the course of some remarks on the subject, made reference to the marked difference of opinion which exists in various towns as to what quantity of black smoke per hour is to be considered a nuisance. In Manchester, for example, one minute per half-hour is allowed, while in Oldham, nine minutes per hour is permitted. In St. Helens, a five-minutes continuous emission of black smoke is deemed a nuisance. Widnes has no fixed time, but as it stands in a somewhat different position to other towns, on account of the peculiar nature of its manufactures, except in very flagrant cases no attention is given. Rochdale has no fixed limit. In Wolverhampton, it is left to the medical officer of health, and depends upon the situation and height of the chimney and the trade carried on. In Newcastle-on-Tyne, five minutes is allowed for emission of black smoke from factory chimneys before it is deemed a nuisance. In Leeds, five minutes in the hour. In Birmingham, the inspectors watch the chimney for an hour. They report the way in which the emission is made up, whether continuous or several emissions. For a first offence, or where a long time has elapsed between offences, letters of caution are sent out. Sheffield allows six minutes in the hour, but where there are not more than three steam boilers and no furnaces, four minutes in the hour only. At Stoke-on-Trent, if black smoke is emitted for a

longer period than fifteen minutes, proceedings are taken. Bolton allows two and a half minutes in the half hour. In this connection, it may be of interest to state that the Manchester Association has caused 1827 half-hourly observations to be made of various chimneys of the members, and the result of these observations showed that black smoke issued for 3224 minutes, an average of one minute forty-six seconds per half-hour. Clearly, opinion is far from unanimous as to what constitutes a smoke nuisance, but it would appear that those authorities who give some consideration to the particular character of the industry carried on, have taken up the more rational position in considering the question at issue."

Wasted Power.

"If half the attention which is now being paid to figuring up the horse power of an engine was given to looking out for shafting, the coal bills would be much smaller than they are now." This remark, made by one of the best known standard engineers of to-day, one, by the way, to whom the indicator is an open book, and whose knowledge of "figuring horse power" makes many an engineer envious, entitles his opinion to some consideration.

No man can know too much about any branch of his work. The more he actually knows, the higher he will always stand in his trade, for in steam engineering or mechanics the old saying "knowledge is power" holds good; but the point the speaker wished to impress upon his hearers was, that they should not become so absorbed in the fascinating study of the indicator that they would neglect the more common points in economical power practice; and it must be acknowledged that many engineers, to-day, are laying themselves open to this accusation. It is the same story over again, that they look to how many horse power the engine is developing, rather than to finding where this energy is being expended.

If an engine is showing 1000 h.p. at an expenditure of 1.5 pounds of coal per horse power per hour, it leads the engineer to feel secure in his economical rating; but it should not end here; he should find out if the plant could not be run with less than 1000 h.p., and while his efforts to keep the amount of coal per horse power per hour is very commendable, he may be able to add considerable to his record by making suggestions, the adoption of which will save in horse power as well as in coal. When this subject is once taken up, it will be found full as fascinating as indicator practice, for there are so few plants to-day which are running with as little power as they might, that the field for improvement is practically unbounded.

Wherever friction is lessened, then power is saved; and wherever an engineer or machinist makes a single box run smoother than it formerly did, he is putting money directly into the pockets of the man who pays for the coal he is using, and eventually into his own, from the fact that he will make himself so valuable to his employer, that his services will command a premium.

There have been volumes written on how to save coal in the boiler room, also in the engine cylinder, by the use of the vacuum pump and by compounding the engines so to obtain the greatest amount of work out of the steam generated, and to generate the steam with the greatest economy; but the subject of saving coal by reducing the amount of power required to run a plant, has been passed over, to a certain extent, in the scramble to save in the other ways. To such an extent has this been neglected, that the engineer who takes the subject up and pushes it into prominence, will be almost entitled to originality in the work. It would astonish many readers to know that a great per cent. of the horse power developed in their engine rooms, remains right there, but such is the case, for nowhere along the line does friction pull so heavily upon the

power, and with such compound leverage, as in the engine itself.

It is extremely difficult for the engineer to tell just where he stands on engine friction, for few establishments are so arranged that the friction load can be figured, without a serious derangement of belts, etc., and it is much easier to ascertain the friction load of the engine and main line shaft together, than either singly, and they are near enough allied to be considered as a whole.

The engineer, in looking over his engine, places his hand on the journals, and if they do not beat so as to cause anxiety, he thinks they must be running smoothly. Does it necessarily follow that the friction of an engine box is as small as it might be, when it is kept cool by a stream of ice water running on it? Neither is it sure that a box which is n't hot enough to melt babbitt, is running with as little friction as it might; so care should be taken to keep boxes well oiled with the kind of oil which will allow them to do their work with the least friction, and enough of it should be used to do this; but, leaving the question of oil as a friction reducer, for a separate article, we will consider some ways in which the friction on an engine and line shaft may be reduced by adjustment, which will also result in a saving of oil as well as coal.

In the first place, the engine of to-day has many stuffing boxes which require packing of some kind to keep them from leaking steam, and the question of packing should be a very important one to the steam plant. Many varieties of metalic packing are found on the market to-day, each of which makes its own peculiar claim to excellence as a friction reducer. These are probably outnumbered two to one, if not twice that, by kinds of soft packing whose claims for recognition are full as numerous.

Laying aside the comparative merits of these two specialties, one must acknowledge that not half enough attention is paid to keeping an engine properly packed, and yet every engineer will admit that to allow his engine rods to become packing bound, even in a slight degree, increases the friction far more than the same amount of pressure would on a shaft. He knows this to be a fact, and yet I have seen engineers so busy taking indicator cards that they could not spend time to keep their engines properly packed; but if the stuffing boxes showed enough leakage to affect the vacuum, he would set the glands down tight enough to stop the leak, regardless of the extra friction he was putting upon his engine.

Passing from the engine to the main shaft, we would inquire: Are you using any more shafting than is necessary? Of course everyone who has modernized his plant, will say no, as a certain agent told me a few years ago, in reply to this question. When, as a matter of fact, his principle weaving mills were driving just twice the amount of line shaft that was actually necessary; for instead of making one line of shafting do for two floors, by belting the second room up through the floor from shafting in the room below, they had run their main lines for each floor separate.

Now I do not claim that it took twice as much power to drive that shafting as it would, had it been set up after the more improved plan, but it did require considerable more. My readers may say that the man who put it up must have been incompetent, but an expert (?) was hired to do the work or plan out the system, and, as the agent remarked, "He ought to have known what he was about." Yes, he ought to, but did he? Just look your plant over and see if there are any lines or counter shafts you can dispense with.

Another source of extra friction, which, of course, means wasted power, is in ill-fitted couplings, which throw your shafting out of line.

"Yes, it is a trifle out," as an engineer said to me when I called his attention once to a hanger that was "wobb-

ling." "But we cannot fix it for the coupling is on crooked"; and so he kept on shoveling coal costing $4.65 per ton, for the privilege of allowing that shaft to run crooked.

Many a broken shaft has been attributed to too great a strain upon it in legitimate work, when, if the truth was known, the trouble lies in the way it is put up or connected. A case of this kind came under my notice a few years ago, when a large plant was compelled to shut down on account of the breaking of four out of seven of the bolts in one of the main shaft couplings, the heads of which were all broken close to the shank. Some of the wise men about the plant laid the trouble to the shutting down of the engine too quickly, notwithstanding the fact that it was running condensing, with a vacuum strong enough to act as a cushion to any attempt to stop too short. Then again, the bolts were a driven fit in the coupling, and, had it been possible to have broken them by the engine stopping or starting, they would have given away in the centre, instead of at the heads. The correct solution of the trouble was found, when, in putting in the new bolts, they were obliged to jack up one side of the coupling to bring it level. It had simply worked open and shut with each revolution of the shaft, until it had broken the bolt heads, all because it was out of level, and the coupling situated just so to catch the strain.

In looking over the remainder of the shafting, the general "winking" of the hangers lead one to think that it would not be at all unreasonable to suppose that one-third of the friction load of that establishment is caused by the shafting being out of line.

One of the best investments a large establishment can make, is to have their line shafting gone over often enough to be sure it is running with as little friction as possible.

No exact calculation can be made, sufficient to determine just the diameter of shafts, and distance of supports, for the strain on a line of shafting is not a constant one. Weights of shafts and pulleys may be calculated, but the absolute tension of belts, under the varying circumstances of starting and stopping machinery, cannot be exactly determined. Formulæ for these purposes are only in a measure correct.

Suspending a length of shaft, with its weight of pulleys between supports to detect deflection, if any, makes no account of the variable strain of belts, nor is there any calculation in this trial, for the rotary movement, the centrifugal force developed, and the vibration resulting.

Too much care cannot be taken in hanging a line of shafting. The usual method is as follows: A strong fish line, or still better, what is known as a china line, is stretched from one end to the other, directly in line with the engine, and the shafting brought correctly in line with this. Sometimes a fine steel wire is used. The wire, however, is apt to trouble by sagging. Of course this sag must be rectified as the hangers are placed, and very few really good men use it, the linen line being far better for getting the hangers in line.

The leveling is done by means of a straight edge, a parallel edged board, of six or eight inches in width. A spirit level on the upper edge of this board, the lower edge resting in the boxes, determines the level from box to box.

The string for lining should not be run along the bottom of the boxes, because it is quite difficult to tell by the eye just where the centre of the box is; but it should be drawn along the edge of the lower box, where it is milled for the upper half or cap. After the shaft and pulleys are in place, it should be all gone over again with a level. For this, it is well to have on hand a rectangular block of iron, eight inches or so in length, by two inches square, planed perfectly true on two opposite faces Then have one of these faces planed to

a V recess, a right angled gutter from end to end. When this side is placed on any shaft up to to three inches in diameter or more, the block will be in perfect line with the shaft, and a spirit level may be laid on it with certainty that it represents the true level of the shaft.

The practice of trying to level by placing the spirit level on the shaft itself, is apt to be misleading; for if it rests diagonal in the slighest degree, it will not register level, and then the pulleys often interfere to prevent its use.

There is another method which is very handy to try the level of shafts at all times. Make a strongly braced rectangular frame of wood or iron, long enough to reach from the shaft to about four feet from the floor. The two side pieces of the frame having feet at right angles at their upper ends, so that they will fit upon the shaft as the iron blocks before mentioned. They also have a cross bar at the bottom, and one or more between that and the top, enough at least to make the frame rigid. If this frame is properly made, a spirit level placed on the lower bar where it can be easily seen, will show, when the hooked ends rest on the shaft, whether it is level or not, and the width of the frame will allow it to be used without interference by the pulleys. In using this, it is always well to have it reach from one side of the hanger to the same side or end of the next, and it should not only be tried on each side of the hanger, but in the centres between them, or as near it as can be placed.

Couplings should be very accurately fitted to the shaft, and should receive a final facing up after being keyed to place. The bolt holes should be reamed through both halves of the coupling while they are on a short arbor, exactly fitting the bore or on the shafts, and the bolts should be made to fit the bolts accurately. Nothing is gained in placing one half of a coupling to project, and the other to allow the shaft to project and fit into it. This is only a fancied convenience in hanging. The portion of the shaft resting in the projecting half coupling, does not tend in the least to strengthen the line. The bolts alone can do that.

There are patented couplings which are no doubt excellent in their way, but there are very few, if any, which are superior to the old flange coupling or disk, so called. Two flanges with hub and smooth faces, having a backward projecting rim extending over the hubs, to cover the bolt heads and nuts. The diameter of these increases, by so much, the stiffness of the shaft; and, taken all in all, there are very few improvements upon them. There is no doubt that fully one-half of the shafting run to-day is out of line, or not level, all of which increases the friction and the coal bills. Here is the complaint, also the remedy, and it ought not to be a hard matter to connect the two.

Steel.

Many people who use steel in small quantities, carry the idea that there is practically but one kind of steel, while in truth there are many kinds, also many compounds which are but poor imitations of the real article.

Many kinds of steel take their name from their maker, as "Bessemer" does from Sir Henry Bessemer. This steel is made from pure grades of cast iron, melted in cupolas, run into converters and blown with air to remove the graphites and slag. This is commonly called converted steel.

Open-Hearth steel is a product named from the form of furnace it is made in. It is composed of fine grades of cast iron, steel scrap, and sometimes wrought iron is added. This mixture is boiled several hours at a high heat to remove the slag; then it is treated with manganese and carbon mixtures to the desired temper, and poured into ingot moulds and rolled into bars, rods, plate, etc. This steel is apt to lack uniformity and be brittle, and when used at high speeds in mechanical work, lacks durability.

Blister or Cemented steel, is a product made by placing wrought iron bars, or bars of Bessemer, in layers in iron boxes packed in charcoal and heated to a high heat for several days, to give it hardening properties. This treatment

is called the cementation process. Blister steel when piled by putting two or more pieces together and rolled into strips or sheets, is called *shear steel*, and is graded as half shear, single shear and double shear.

High grade Crucible steel, manufactured by the Carpenter Steel Co. process, is made from the purest iron, refined in puddling furnaces, which when finished, is known as double refined wrought bar. It is cut into small pieces, mixed with high carbonized steel and metallic alloys, put in crucibles and melted in fires. After melting, it is retained in the fires at certain high temperatures, until chemical reactions have taken place; then it is ready for pouring into moulds of different sizes.

After the ingots are cold, they are heated and hammered down by steam hammers to fixed proportions; then they are trimmed and picked to remove blisters, which are liable to form seams. When ready, these bars are rolled to other sizes, and finally re-trimmed into the finished bar, again trimmed to remove piping and defects.

Carbonizing steel, to give it different temper qualities, is a very important subject, and should be understood by all users of steel, for they should know that the higher the carbon, the less heat it should have in forging and hardening, and while lower carbon steel stands more heat without injury, yet it should not be heated too high, as a high heat destroys the cement condition of the carbon, and the tools do not do as good service. It is better to use high carbon steel at low heat, than to heat low carbon steel to a high heat, that is, to a heat that will be greater than a cherry red; for, if a steel does not harden properly at a cherry red for the purpose for which it is used, use a harder steel, and better working results will follow.

Carbon in steel is measured in points or per cent. Hammer steel contains .60 carbon; spring steel usually .70 carbon; die steel .70; chisel steel .80; tap and drill steel .90; milling steel, 1.00; tool steel 1.25; special 1.35; cutlery .80; surgical instruments about 1.00. These proportions vary to suit the purpose for which the steel is intended.

Carbon, in low proportions, forms the cement conditions which unite the particles of metal; higher proportions add strength; still higher adds hardening properties; but excessive carbon makes the steel brittle. The lower in carbon, the tougher and more elastic steel will be under hard abuse or heavy blows; and the higher in carbon, the harder edge it will take, but being less elastic, it will not stand the blows.

Jarvis Engineering Co.

This company first came into prominence in the manufacturing world in 1876, under the title of the Jarvis Furnace Co., through placing on the market the Jarvis furnace or boiler setting, invented by H. M. Jarvis, president of the company, which was one of the pioneers in introducing patent settings. Up to this time boilers had practically been set in the old plain style and little regard had been paid to burning gasses. The advent of the Jarvis setting called more attention to supplying air to the furnace in such a way as to consume much of the gases which, in plain settings had been carried up chimney unconsumed, owing to an insufficient supply of air, all of which was compelled to pass up through the grate bars. This at once showed an important saving in coal, and had also the advantage of enabling the burning of cheaper fuels.

In 1881, the company extended its business to the sale of engines and other steam supplies, and adopted the title of the Jarvis Engineering Company. The reputation it attained for filling contracts in furnace lines, served well in the extension, and as a result is seen the flattering business which the enterprise has built up. The success of the company is due in no slight measure to the foresight and management of

J. N. Pratt, who entered the company's service early as setter-up, and whose ability was recognized to the extent of his being finally called to the position of general manager and treasurer, which he still holds.

In addition to the Jarvis furnace, this company, at its Oliver Street stores, handles a large line of supplies, including the Armington & Sims engine, the National rocking grate bar, Korting injectors, ejectors, steam jet blowers, the Sheffield shaking grate bar, feed water heaters, condensers, traps and other supplies.

A Singular Accident.

One of the most singular accidents ever noted in this country, occurred at the works of the East River Lead Co., 522 East 19th street, recently, where a man by the name of John Scanlon, had charge of a wire making machine.

The machine is a steel box, from which molten metal is forced through an aperture, or die, one-sixteenth of an inch in diameter, by hydraulic pressure of 600 tons. The stream of lead, before it reaches the air, hardens into a long, thin wire, which is afterwards wound upon a wheel. At times the aperture becomes clogged and the stream of lead stops. When this happens, the attendant seizes the wire in his hands and sets it going again by a sharp pull.

Scanlon was at work when the machine clogged, the reel went on turning and broke the wire off about ten inches from the die. Scanlon reached over, as usual, caught hold of the wire and gave it a smart pull. All at once there was an explosion in the metal receptacle. The whole machine was enveloped in steam, and Scanlon was knocked senseless. When he regained consciousness, he was in an ambulance on his way to Bellevue Hospital. The man's arm, which gave him some pain, was examined by the doctors, who said that his elbow was out of joint. There was a little cut about two inches long, extending across the arm about three inches above the wrist, but under the circumstances, no attention was paid to it.

The usual practice for putting the elbow bones back into place was resorted to, but the pain in the arm did not cease, so a more thorough examination was made, and what was thought to be bits of broken bone could be felt above the joints. It was then decided that Scanlon had a compound fracture of the upper part of the bones of the forearm, and a time was set for an operation.

Scanlon was put under the influence of ether. Dr. Rathbone, assisted by the house staff, started the operation. The knife with which the surgeon commenced to cut away the flesh that covered the bones had hardly penetrated the skin, when it struck against a foreign body, that the surgeon's delicate touch detected to be metal.

Upon further cutting, eleven feet, or, more exactly 134 inches of lead wire was brought out. The wire was coiled and tangled together, and broken into many pieces. Part of it was lodged between the two bones of the forearm, but most was embedded in the big muscle there and in small bits about the elbow joint. Scanlon's arm was evidently bent when the accident occurred, and the elbow joint stopped the wire which had shot out of the machine under the force of the explosion and penetrated the arm where the little cut was found, going on by its own momentum

—It is said that the most effective test to determine whether silk is real or artificial, is combustion. Natural silk burns slowly, curling up the while, and emitting an odor peculiar to itself; artificial silk burns rapidly and smells like burnt cotton. Sometimes the two are now united, one constituting the warp, the other the weft. The 1894 yield of silk is estimated at 13.279.000 kilograms, about 3 1-2 per cent. less than 1893.

—Since the new tariff went into effect, it is positively dangerous for a man to saunter by a clothing store, unless he carefully leaves all his money at home before starting out.

COLORS AND DYEING.

The Dye Department and Sample Sheet.

We take pleasure in announcing that hereafter the Colors and Dyeing Department of the TEXTILE WORLD and its Dyed Sample Sheet will be conducted by the Chemistry and Dyeing Department of the Philadelphia Textile School, and the dye tests and practical laboratory work for the dye sheet will be carried out in its laboratory where the facilities are greatly superior to those formerly possessed by us. The high standing of this Philadelphia Textile School, the excellent equipment of its laboratory (which was described and illustrated in our last number), and the character of the gentlemen who have this work in charge, will be satisfactory assurance to our readers that this department is in good hands.

The scope of the work will be broadened considerably; careful data will accompany all tests, and all conditions will be taken into consideration and duly noted, in an entirely impartial manner, without regard to advertising or other considerations.

In order to controvert any impression that may arise that these laboratory tests will be the work of untrained pupils, we wish to state emphatically that such is not the case. The reputation of this Philadelphia institution, as well as that of the TEXTILE WORLD, stand too high to admit of anything but the best results, and the gentlemen who assume charge of this branch of our work feel a personal pride for themselves and their institution in making it creditable to all concerned.

We are constantly in receipt of requests for information, recipes to match certain shades, and many questions of purely personal interest to the correspondent. Questions that seem to us to be of general interest to the trade will be answered through the columns of the Dye Department as freely as space will permit, but we cannot undertake to furnish information on such subjects as should naturally be submitted to a professional chemist, unless they have sufficient general interest to warrant publication.

Owing to these recent changes in the Dye Department, the time schedule of the Dyed Sample Sheet has been thrown somewhat out of gear, and it is the February dye sheet which is now being sent out in conjunction with this issue, and the recipes contained in this issue are those for the tests which appear in the February sheet. Between now and the next issue of the TEXTILE WORLD, we trust to issue the March sample sheet, so that with the April issue we shall be again on time, and henceforth everything will run smoothly

Experimental Dye Sheet Recipes.

A Sample Color Sheet is issued each month by the TEXTILE WORLD, showing samples of stock, yarn, fabrics etc., which have been dyed in the laboratory of the Philadelphia Textile School according to the recipes given in the TEXTILE WORLD. We show the latest colors and methods from month to month, and other tests of interest to the dyer. The extra cost of the Dyed Sample Sheets is $1.00 per year.

No. 1.

Blue on Cotton Cloth

Dyed with Benzo Azurine G; Farbenfabriken of Elberfeld Co., 77 William St., New York.

(For 100 lbs. of cloth.)

Dye bath is made up as follows:

3% Benzo Azurine G,
10% Common Salt (Sodium Chloride).

Enter cloth (previously wet out) at 160° F., raise to boil, and boil for one hour. Wash and dry.

In dyeing this sample, the amount of water in the dye bath was 30 times the

weight of the cloth. The bath is only partially exhausted.

No. 2.

Blue on Woolen Cloth (Serge.)

Dyed with Benzo Azurine G; Farbenfabriken of Elberfeld Co., 77 William St., New York.

(For 100 lbs. of cloth.)

Dye bath is made up as follows:

3% Benzo Azurine G,
10% Common Salt (Sodium Chloride).

Enter cloth (previously wet out) at 160° F., raise to boil, and boil for one hour. Wash and dry.

In dyeing this sample, the amount of water in the dye bath was 75 times the weight of the cloth. The bath is only partially exhausted.

No. 3.

Pink on 2/36 Worsted Yarn.

Dyed with Rhodamine B, patented; Wm. Pickhardt & Kuttroff, 98 Liberty St., New York.

(For 100 lbs. of yarn, grease weight.)

Dye bath is made up as follows:

$\frac{1}{10}$% Rhodamine B, patented,
2% Vitriol (Sulphuric Acid).
10% Glauber's Salt (Sodium Sulphate).

Enter the yarn (previously wet out) at 100° F., raise slowly to boil, and boil fifteen minutes. Wash and dry.

In dyeing this sample, the amount of water in the dye bath was 100 times the weight of the yarn.

No. 4.

Old Gold on 2/30 Cotton Yarn.

Dyed with Old Gold, No. 203; Alex P. Mende & Co., 14 Water St., New York.

(For 100 lbs. of yarn.)

Dye bath is made up as follows:

10% Old Gold, No. 203.

Enter the yarn (previously wet out) at the boil, and boil for one hour. Wash and dry.

In dyeing this sample, the amount of water in the dye bath was 40 times the weight of the yarn. The bath is only partially exhausted.

No. 5.

Olive on 2/30 Cotton Yarn.

Dyed with Old Gold, No. 203; Alex P. Mende & Co,, 14 Water St., New York. After dyeing, saddened with Pyrolignite of Iron.

(For 100 lbs. of yarn.)

Dye bath is made up as follows:

10% Old Gold, No. 203.

Enter the yarn (previously wet out) at the boil, and boil for one hour. Let drain, and work for 20 minutes in a cold bath of 5% of Pyrolignite of Iron. Wash and dry.

In both of these baths the water was 40 times the weight of yarn.

No. 6.

Dark Slate on 2/30 Cotton Yarn.

Dyed with Dark Steel, No. 227; Alex P. Mende & Co., 14 Water St., New York.

(For 100 lbs. of yarn.)

Dye bath is made up as follows:

10% Dark Steel, No. 227.

Enter the yarn (previously wet out) at the boil, and boil for one hour. Wash and dry.

In dyeing this sample, the amount of water in the dye bath was 40 times the weight of the yarn. The bath is only partially exhausted.

No. 7.

Dark Slate on 2/30 Cotton Yarn.

Dyed with Dark Steel, No. 227; Alex P. Mende & Co., 14 Water St., New York. After dyeing, saddened with Pyrolignite of Iron.

(For 100 lbs. of yarn.)

Dye bath is made up as follows:

10% Dark Steel, No. 227.

Enter the yarn (previously wet out) at the boil, and boil for one hour. Let drain, and work for 20 minutes in a cold bath of 5% Pyrolignite of Iron. Wash and dry.

In both of these baths the water was 40 times the weight of the yarn.

No. 8.

Yellow on Cotton Cloth.

Dyed with Chrysamin G; Farbenfabriken of Elberfeld Co., 77 William St., New York.

(For 100 lbs. of cloth.)

Dye bath is made up as follows:

3% Chrysamin G.
10% Common Salt (Sodium Chloride).

Enter cloth (previously wet out) at 180° F., raise to a boil, and boil for one hour. Wash and dry.

In dyeing this sample, the amount of water in the dye bath was 30 times the weight of the cloth. The bath is only partially exhausted.

No. 9.

Yellow on Woolen Cloth (Serge.)

Dyed with Chrysamin G; Farbenfabriken of Elberfeld Co., 77 William St., New York.

(For 100 lbs. of cloth.)

Dye bath is made up as follows:

3% Chrysamin G,
10% Common Salt (Sodium Chloride.)

Enter cloth (previously wet out) at 180° F., raise to a boil, and boil for one hour. Wash and dry.

In dyeing this sample, the amount of water in the dye bath was 75 times the weight of the cloth. The bath is only partially exhausted.

No. 10.

Slate on 2/36 Worsted Yarn.

Dyed with Alizarin Blue SB and Alizarin Brown SO; Wm. Pickhardt & Kuttroff, 98 Liberty St., New York. Dyed on Mordant of Chrome and Tartar.

(For 100 lbs. of yarn, grease weight.)

Dye bath is used as follows:

2% Chrome (Bichromate of Potash).
1% Tartar (Bitartrate of Potash).

Enter yarn (previously wet out) at 160° F., raise to a boil, and boil for one hour. Wash, and enter a bath of

$\frac{1}{2}$% Alizarin Blue SB (powd.),
$\frac{3}{16}$% Alizarin Brown SO (powd.).

Work cold for 20 minutes, raise slowly to a boil, and boil for one hour. Wash and dry.

In both of these baths the amount of water used was 100 times the weight of the yarn.

No. 11.

Blue on 2/28 Worsted Yarn.

Mordanted with "Our Mordant"; Chas. F. Rice & Co., 174 Summer St., Boston. Dyed with Alizarin Blue DNW; Schulze, Berge & Koechl, 79 Murray St., New York.

(For 100 lbs. of yarn, grease weight.)

Dye bath is used as follows:

8% "Our Mordant"

Enter the yarn (previously wet out) at 120° F., raise to a boil in one-half hour, and boil for one hour. Cool, wash, and enter a bath of

10% Alizarin Blue DNW (paste).

Enter cold, raise to a boil in one hour, and boil for one hour. Wash and dry.

In both of these baths the amount of water used was 100 times the weight of the yarn.

No. 12.

Medium Brown on 2/28 Worsted Yarn.

Mordanted with "Our Mordant"; Chas. F. Rice & Co., 174 Summer St., Boston. Dyed with Alizarin Brown; Schulze, Berge & Koechl, 79 Murray St., New York.

(For 100 lbs. of yarn, grease weight.)

Dye bath is used as follows:

8% "Our Mordant".

Enter the yarn (previously wet out) at 120° F., raise to a boil in one-half hour, and boil for one hour. Cool, wash, and enter a bath of

10% Alizarin Brown (paste).

Enter cold, raise to a boil in one hour, and boil for one hour. Wash and dry.

In both of these baths the amount of water used was 100 times the weight of the yarn.

—**The government of the Orange Free State offers an annual bonus to encourage the establishment of a woolen manufactory in that Republic, which shall turn out a certain quantity of cloth from home wool. The Transvaal government makes a similar tender, the result of which is the organization of a German company. It will start the first woolen factory in the Transvaal.**

Remarks on the Dyed Samples.

It will be the purpose of the Dye Sheet to furnish as accurate recipes as possible for all colors shown. Also, to bring out new colors and their practical use., Besides this, we will endeavor to take colors, which are not entirely new, but which are standards, showing them up as applied with different salts or mordants, and also their application to the cotton and wool fibre. The compounding of colors, or producing of shades which require more than a single dyestuff, is always a matter of interest to the dyer, and we will endeavor to help him in this line to the best of our ability.

Samples of cloth, No. 1, 2, 8 and 9, are shown for the purpose of giving the effect of two of the Benzo colors, as dyed on cotton and wool. It will be noticed that the recipes are the exact counterpart of each other, except in the amount of water contained in the dyebath. This gives a fair idea of the effect that would be produced on cotton and wool mixed pieces, if dyed with these colors.

Samples of cotton yarn, No. 4, 5, 6 and 7, illustrate two new colors that have come into the market recently. Both of these dye in a neutral bath, that is, without the addition of anything to the dyebath, except the dyestuff. The bath does not exhaust very well, and for economy must be used over, the second lot requiring the addition of from four to five per cent. of dyestuff to produce the same shade as first obtained. The dyestuff dyes very level, and from experiment, the cotton can be entered into the bath at the boiling point without previous wetting out. As shown in the samples, these can be dyed straight, or afterward saddened with iron.

Samples No. 11 and 12 illustrate the use of a mordant which is designed to take the place of bichromate of potash, and the acids used in freeing the chromic acid. It works very well, making a good solution, and leaving the yarn in good condition for the reception of the dyestuff. This works the same as chrome and tartar, as is shown in the samples displayed.

Sample No. 3 is a pink on worsted yarn, and is about as fast as any pink that can be obtained. Owing to the sulphuric acid and boiling, it is not quite as brilliant as the shade produced with acetic acid, and the temperature betweeen 130° F. and 160° F., but it has the advantage of being more permanent.

Sample No. 10 is a good fast slate produced on worsted yarn with alizarin dyes on a chrome mordant. Very little trouble will be experienced in dyeing this shade, if the twenty minutes' cold working are given to the yarn. This gives the dyestuff a chance to fix itself to the fibre evenly, then, when the temperature is gradually raised, it combines with the mordant and develops into its full shade and intensity without being streaked.

CONYERS B. FINCKEL.

—Among recent importations is the anthonomus grandis, the cotton weevil now being introduced in Texas from Coahulla, Mexico. The industrious little creature riddles the boll, ruining fibre and seed. Paris green is not an efficacious remedy as the weevil feeds within the boll.

Olive Oil, Fulling, Scouring
Will mail sample on request.

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520-22-24 BIRCH STREET,

CAMDEN, N. J.

Roundabout Notes.

For the Textile World.

DYEING, PRINTING, BLEACHING AND FINISHING.

Messrs. Matheson & Co., of New York, have several patents in England, covering the production of coloring matter from dyewoods. In one just issued the process employed is founded on the discovery that if a small percentage of biborate of sodium is added to a logwood extract the mixture thickens; if the mass is then dried a friable substance forms which is not affected by the atmosphere, and is practically non-deliquescent. These are very important qualities to the dyer who can thus stock his extract safely and economically in the form of powder.

***

As an example, from one to three per cent. of pulverized borax is added to an ordinary syrupy logwood extract of 60 degrees Tw. The mixture is well stirred and dried at a gentle heat which should not pass 85 degrees C. The dried material is then crushed and is ready to pack away. A valuable coloring matter of great tinctorial strength is thus obtained. With the various mordants it gives tints of great purity, superior to those obtained with the ordinary solid extract.

***

Messrs. Matheson say that the same result is got with other salts, but that borax is the best. An Englishman named Willis, has patented a similar process, employing about seven per cent. of ammonium carbonate, previously dissolved in a little water. In this case the drying is begun at a room temperature, say about 20 C, and completed after several hours at a heat not exceeding 80 C. A brittle mass is obtained, which is easily ground to powder. Good keeping qualities are asserted for this preparation as well, but, if not trespassing on their preserves, the idea seems to have been derived from the New York firm.

Keller & Lunge, say that aluminium sulphate for turkey red dyeing should be free from zinc, which is decidedly injurious, and should not contain more than one one-thousandth per cent. of iron. That quantity of iron is harmless and ferrous salts are less harmful than ferric salts, but it is difficult to get a sample of sulphate entirely free from iron.

***

Tissue printing experiments made at Blumenegg, show that a proportion of iron at any rate up to one two-hundredth per cent. in the aluminium sulphate, was not injurious. Indeed, in several cases with the percentage artificially raised to one per cent. no bad results on shades followed. It is evident, therefore, that an ordinary aluminium sulphate for tissue printing need not be examined for iron.

***

A product prepared by the Thann & Mulhouse Chemical Manufacturing Society, is described by the inventors in the F. Z. It is a mixture of naptholate of soda and antimony oxide in solution, which allows insoluble azo dyes to be developed on cotton fibre prepared with it. There is no necessity to use the treated cotton at once; it may be stocked after preparation and will keep for weeks. Basic anilines may be printed on this bottom without steaming and beside the direct azo, some of the alizarines go on well.

***

The Chemiker Zeitung gives a new way of dealing with iron stains on linen. The fabric is moistened with water and rubbed with a five per cent. solution of tannin in water. After being allowed to lie for six hours, the linen is rinsed, the stain thoroughly rubbed with soap and re-rinsed. The iron marks are then rubbed with a five per cent. solution of oxalic acid and the linen allowed another six hours rest. When the fabric is again washed and rinsed, the stain has disappeared.

So far, tempting as they are, the alizarines have been considered useless for the dyeing of cops and spools. Uneven shades have always been the result of any attempt in this direction. Erban & Specht, however, have extended their process of alkaline solution to the treatment of cops with insoluble adjective coloring matters in alkaline solution. Given the alkaline solution of the insoluble mordant dye—and it will be hard to go wrong in the choice of these, as almost every one known is mentioned in the patent—the rest of the process follows the ordinary methods of cop dyeing, the color being fixed on the fibre by steaming.

***

In order to get a chrome color lake on woolen yarn in a single bath, a French firm replace the bichromate (which must be used in a separate mordanting bath) with other salts of chrome. These may go into the dyebath along with any coloring matters, natural, or artificial, that need a chrome mordant. These salts are the tatrate, oxalate, malate, citrate, succinate, lactate, benzoate or salicylate of chrome. Any one of them may be used, or the whole eight may be mixed together, along with inorganic salts of chrome, such as the chloride and sulphate, or even with the double salts, such as chrome alum. For instance, 100 lbs. of wool may be dyed in a single bath with an equal percentage—say three to four lbs. each of galleine and tartrate of chrome.

***

Frost effects can be gotten by printing on light silks or calicoes a strong waterglass (tetra-silicate of soda), and passing through a weak acid bath. The silica precipitate adheres to the fibre as a frost white powder.

***

Nitrate of ammonia, prepared by neutralizing ammonia with nitric, used with starch as a thickening, is recommended by the Mulhouse Society, as a resist for aluminate or tannate of antimony, etc. It has the advantage over the organic acids and other resists of not attacking turkey red and similar colors. The printing color must be kept alkaline.

—We have received the first number of the Dyers' Trade Journal, a monthly publication of 16 pages, devoted to dyeing, bleaching, scouring, printing, etc. It is published by the Dyers' Trade Publishing Co., 2220 Lambert St., Philadelphia, and conducted by Mr. Edward Prag, who was for several years in charge of the Colors and Dyeing Department of the TEXTILE WORLD. A supplement containing dyed samples is published in connection with the journal, which starts off with a good advertising clientage, and has the best wishes of the TEXTILE WORLD for a prosperous career. The first number contains some interesting technical articles.

—A prominent dyeing firm prefaces one of its late advertisements in this fashion:

THE SUN'S A SPONGE

that absorbs with its rays, the colors that once gave a fabric value. Many a yard of fine goods has given to the sun all that made it pleasing, all that made it bright. No reason, though, why the goods should be sold as remnants, or why they should be a loss. Let us dye them for you.

—Here's diversified Southern industry with a vengeance. It is announced that a Western syndicate has organized a fruit company, and secured 1000 acres of land near Montezuma, Ga. It has already erected peach and pear trees on 125 acres, and intends planting a crate factory, fruit packing plant, cotton and cotton oil mills, a grist mill and a fertilizer factory. In this way it can make use of all the products of the land, and is planning means to appropriate the contiguous atmosphere.

Wm. Pickhardt & Kuttroff,

B. Anilin & Soda Fabrik Sp. P.

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Sole Importers of ALIZARINE AND ANILINE COLORS

Manufactured by

FARBENFABRIKEN vormals FRIEDR. BAYER & Co., Elberfeld and Barmen, Germany.

Sole agents of the Hudson River Aniline Color Works, ALBANY, N. Y.

JOHN J. KELLER & CO., 104 MURRAY STREET, NEW YORK.

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Aniline Colors, Dyewood Extracts, Etc.

Cotton Printing Specialties, Fast One-Dip Cotton Colors, Fast Wool Colors.

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Galleine Colors.

Faster than Alizarine. Produced at one-half the cost.

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Harway Dyewood & Extract Manufacturing Co.,

MANUFACTURERS OF

DYEWOODS, DYEWOOD EXTRACTS and LIQUORS, HAEMATINE ONE DIP BLACK DYE, CUTCH EXTRACT.

Importers of Indigo, Cutch, Madder, Chemicals, &c.

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—MANUFACTURERS OF—

DYEWOODS AND EXTRACTS.

LOGWOOD.
FUSTIC.
BARK
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BEACH & COMPANY,

Hartford, Conn., and 372 & 374 Atlantic Ave., Boston, Mass.

Proprietors GROVE WORKS DYEWOOD MILLS.

Agents British Alizarine Co., Brooks, Simpson & Spiller, Anilines, Edward Mucklow's Dyeing Extracts, J. R. G. Cochineal, Etc.

CHARLES F. RICE & CO.,

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Dyestuffs, Chemicals, Colors AND Indigo.

SPECIALTIES:

INDICO PROCESS DYEING. CHEAPER than ALIZARINE.

ALIZARINE MORDANT. CHEAPEST and BEST known.

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LATEST SPECIALTIES.

Cresylblue,	OB pat'd.	For Cotton: absolutely fast to Sunlight.	Thio	Versurine,	BB.	One Dip Cotton Colors.
"	BB "		"	Brown,	BB.	
"	RR "		"	Yellow,	R.	
Cresylviolet	"		"	Orange,	G.	

Naphtazine Blue (Pat.)—a fast acid Navy Blue for Wool.

Sole Agents for the U. S. and Canada of

Mommers' Patented Process of Cop Dyeing.

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Soda Ash, Blue Vitrol, Carbonate of Potash, Glauber's Salt and Alum, Nitrate of Iron.

THOS. A. HARRIS' PATENT DEVICE

For **Protecting** the **Bolts** of Square **Vats** and **Tubs** from **Corosion.** Bolts furnished. Rights for sale and royalties arranged.

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CUTCH, OXALIC ACID, CAUSTIC POTASH,

Blue Vitriol, Carb. Potash,

Chlorate of Potash, Caustic Soda, Arsenic, Shellac, Ceylon and Cochin Cocoanut Oil.

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383 WEST STREET, NEW YORK,

Importers of Celebrated "Golden Fleece" Extra Refined Concentrated 98 per cent.

Powdered Caustic Soda.

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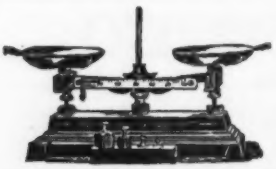
Extracts of Indigo, Indigo Carmine, Indigotine, Refined Indigo, Dressing, Softening, Bichloride of Tin, Bisulphide of Soda.



Established in 1840.

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MAKER OF

FINE SCALES and WEIGHTS,

for Woolen & Cotton Mills, Dye Works etc.

Price List on Application

FAST BLACK FOR WOOL on Yarn and Cloths.

Dyes in one bath, is absolutely fast in every respect and cheap in production.

Yarns and Cloths dyed in lots, or

WILL SELL RECIPE.

E. HARRAS,

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CALICO PRINTERS! Use JAMES KENYON & SONS'

LAPPINGS and BLANKETS.

They are the best made.

CHAS. A. JOHNSON & CO.

Dealers in Dyestuffs and Textile trade supplies. Sole agents for United States. 14 Dey St., New York. 29 Weybosset St., Providence.

L. C. KING & COMPANY,

Indigo, Cutch, Gambier, Acetates of Lime and Soda, Sugars of Lead, Sicily Sumac, Prussiate of Potash.

171 Front Street, - NEW YORK.

AT LAST Union Goods and Hosiery made of Cotton and Wool in any proportion can be dyed a good serviceable Black in One Operation with the

Save Time, Labor, Steam, Trouble and Expense of Speck Dyeing.

Naumkeag One-Dip Black Dye.

Competent man sent free of expense to start you up. Address,

NAUMKEAG DYE COMPANY, - Salem, Mass.

Commercial Lactic Acid Mordant.

THE PUREST, STRONGEST AND CHEAPEST PRODUCT ON THE MARKET.

Used by the Leading Mills. Endorsed by the Best Chemists.

Original Manufacturers.

GILBERT BROS. NEWTON UPPER FALLS, MASS.

Original Introducers.

Beware of all Imitations. Use no Substitutes.

Our Mordant—The Standard. Our Trade Mark—The Guarantee.

ALSO DEALERS IN

DYESTUFFS and CHEMICALS.

Boston Office: 202-204 Purchase St.

WORKS: NEWTON UPPER FALLS, MASS.

—James Walton, 72, long a principal owner in the Methuen Woolen Mills, of Methuen, died late last month of apoplexy. He expired while at the dinner table. Mr. Walton came from England when young, and began work in the roller mills near Lawrence. He gradually forged ahead until he became largely interested in the Methuen industry mentioned. He was for 18 years president of the Methuen National Bank, and long vice-president of the Lawrence Street Railway Company. He had been prominent in St. John's Episcopal Church, of Lawrence, and in the order of Knights Templar. Eight years ago he retired from active business and traveled until a year ago, when he settled in Springfield, Mass. He leaves a wife and two sons.

—Jacob Horandt, silk manufacturer, of Totowa, N. J., died recently of pneumonia. He was born in 1834, in Switzerland, where his father combined farming and silk manufacture. He came to this country in 1872, and soon became superintendent of Pelgram & Meyer's mill, where he remained 12 years. In 1882 he established the concern of Jacob Horandt & Son, which continued 10 years. He leaves a wife and four children.

—William W. Collins, of Pawtucket, founder of the Collins Machine Company, is dead. Mr. Collins, who was about 70, retired from business eight years ago, being succeeded by his sons. He was a native of Yorkshire, England, but had lived in Pawtucket 40 years, and had amassed a competency.

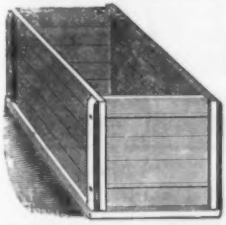
—John Copcutt, of Yonkers, 80, who had long conducted a large silk mill at that place, died recently of pneumonia. He was born in Thonas, Oxfordshire, England, and came to America in 1817. A wife and six children survive him.

—Hubbard Willson, senior partner of the Cordaville Woolen Company, is dead at the age of 75. He was a native of Northumberland, N. H. Previous to the war he lived in Lowell, being overseer of the mule room at the Hamilton Manufacturing Company. In 1861 Mr. Willson went to Cordaville to conduct a mill for Boston parties, eventually securing an interest in the concern. For a dozen years he had lived in Westboro, his charity and public spirit being marked.

—Willard F. Leonard, 70, of Otsego, is dead He had long suffered from consumption. Mr. Leonard was a native of Savoy, Mass. moving to Otsego after attaining his majority. In partnership with the late William M. Clinton, he built the cotton mills at Clintonville, selling his interest to his partner in 1858. He then went to Morris and engaged in cotton manufacturing with his brother Russell Leonard. For a dozen years he has not been actively engaged.

—The Carolina Mills, Carolina, R. I., are now running at full capacity after an extended shut down. Frank E. Inman, of Nasonville, R. I., is fixer.

—The Kilbourn Knitting Machine Co., of Martinsburg, W. Va., have just put in two new Furbush self acting mules.



GEORGE WOOLFORD,

Cedar Tank and Vat Factory,

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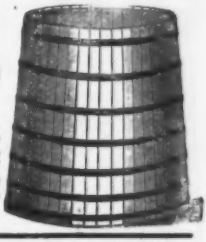
Dye-Tubs, Water Tanks, Wash Boxes, Bleaching Tubs, Blue Vats, Boiling Keirs, etc. **RESERVOIR TANKS**, any capacity or shape, for factories, dwellings villages, farms, etc. **Please send for Estimate, and we will Guarantee Satisfaction.**



American Stave & Cooperage Co.

Manufacturers of Cedar, Cypress, Pine or Oak

ROUND AND SQUARE TANKS

Of any Shape or Capacity.

CASKS, HOGSHEADS, BARRELS and KEGS.

6 Drayton St., SAVANNAH. **66 Broad St., NEW YORK.** **160 State St., BOSTON.**

Illustrated Catalogue on Application.

CHAS. R. EARLE, Pres. and Treas. M. W. GARDINER, JR., Sec'y
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PHENIX IRON FOUNDRY, Providence, R. I.
Manufacturers of
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Bleaching AND Dyeing Machinery

Printing Machines, Shafting, Pulleys, Gearing, Hydraulic Presses, Tenter Drying Machines, Ageing Boxes, Expansion Pulleys, Hollingworth Automatic Feed, Can Drying Machines, Grate Bars, Cloth Cutting Machines, Silk, Lace and Cotton Finishing Machinery,
and Sole Manufact'rs of **NAGLE POWER FEED PUMP.**
Send for Catalogue.

LINCOLN & COMPANY,
MANUFACTURERS OF IMPOVED MACHINERY FOR
Bleaching, Dyeing, Drying and Finishing.
Sole Makers for the United States of
Mather & Platt's Patent Self-feeding Tenters.
Complete Plants for
BLEACHING, ANILINE BLACKS AND INDIGOS.
54 to 70 Arch Street, - HARTFORD, CONN.

COPPER PRINT ROLLERS AND SINGE PLATES
For CALICO PRINTERS and DYERS.
Best of Workmanship, Quick Delivery and Bottom Prices.
New Bedford Copper Co., New Bedford, Mass.

ESTABLISHED 1847. INCORPORATED 1890.
JOHN HOPE & SONS
ENGRAVING AND MFG. CO.,
Engravers to Silk, Calico, Oil Cloth, and General FABRIC PRINTERS.
—BUILDERS OF—
Pantagraph, Mill Engraving and Grounding Machines,
urning Off, Polishing and Dead Center Lathes, Clamps, Die Blocks, Diamond Points
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STEEL AND COPPER PLATE RULING MACHINES.
ELMWOOD, - PROVIDENCE, R. I.

Established 1788.
JOSEPH OAT AND SONS,
232 Quarry Street, PHILADELPHIA, PA.
MANUFACTURER OF
Copper Dye Vats, Vacuum Pans,
Steam Cylinders, Logwood Extractors,
And all kinds of copper work used in dyehouses and chemical laboratories.

AMOS H. HALL,

Cedar Vat, and Tank Factory.

MANUFACTURER OF

All kinds of **VATS AND TUBS** used by Dyers, Bleachers, Mills, Factories, etc.

ESTIMATES SOLICITED.

North 2d Street, above Cambria Street,

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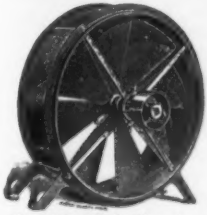
Down Town Office, 140 Chestnut Street. Hours, 12 to 1.

NEW ENGLAND

Ventilating and Heating Company.



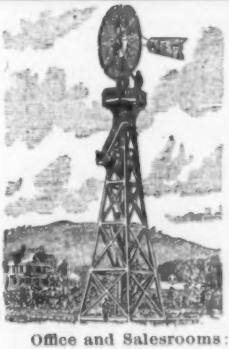
From 1 to 6 ft. in Diameter.

Our system of Ventilating and Drying by air circulation will improve quality and increase production.

PLANS AND ESTIMATES ON APPLICATION.

OFFICE AND WORKS:

926, 928 and 930 Manton Avenue, Providence, R. I.



Office and Salesrooms:

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Jersey Avenue and 13th Street,

JERSEY CITY.

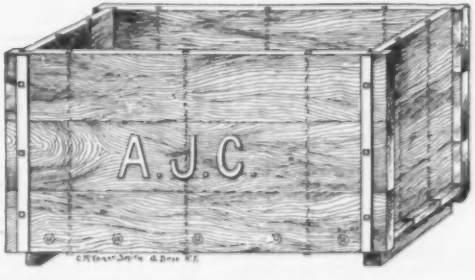
Telephone 238 Jersey City.

CORCORAN'S Tanks, Vats & Dye Tubs are Perfect

Of either Cedar or Oak, Pine or other woods. Bands fitted with **Adjustable Lugs** and **Draw Rods** with friction plates. Over 200 sizes. Send for information.

STORM DEFYING WIND MILLS.

Most durable, always satisfactory. They are working in every country on earth.



Seamless Cast Iron Steam Kettles,

Cast in one piece. No leaking. No boiling over. No waste of steam. Sizes 6 to 200 gallons. Send for Circular "S."

WALKER & PRATT MFG. CO.,

31-35 Union Street, Boston, Mass.

Copper Swing Dye Tank in Iron Frame.

Chas. Brabender & Son,

Patterson Copper Works,

Manufacturers of

COPPER WORK FOR DYERS,

Silk Finishers, Chemical Works, etc., Vacumm Pans, and Copper Apparatus for Logwood Extract Manufacturers. Jacket Kettles, Varnish Kettles, Steam Coils in Copper and Iron. Estimates furnished to all parts of the country.

GUN MILL YARD,

Telephone 240. **PATERSON, N. J**

—Lee Sigmier, for 13 years boss carder for the Old Kentucky Woolen Mills, is now with the Mayfield, Kentucky, Woolen Mill.

—The Pneumatic Watchman Check Co., Columbus, Ohio, is now engaged in equipping the P. C. C. & St. L. R. R. shops, Indianapolis, Ind.; the plant of the wakefield Rattan Co., Kankakee, Ill., and the Diamond Match Co., Akron, Ohio, (the largest factory of the kind in the world), with large pneumatic watchman checks, having from twenty to thirty-five stations. On Feb. 18th, an order was received from the Vandalia R. R. line to equip all its property where watchmen are employed, from Indianapolis to St. Louis, with the valuable device. These orders were obtained in direct competition with other watchman check companies, and is an unmistakable indication of the merits of the pneumatic system. The matter of watchman checks is being considered more and more by underwriter's associations throughout the country, and the pneumatic receives their unqualified indorsment.

—We direct attention to the advertisement of the Van Winkle Gin & Machinery Co.'s plant, which is offered for sale, as the proprietors wish to settle up and divide their business. This plant is one of the largest foundry and machine works in the Southern States, doing an annual business of $250,000 to $300,000. The plant when built was planned for a cotton factory, to accommodate about 20,000 spindles, with looms, and is considered well adapted for that purpose.

—The annual report of the Boston Manufacturers Mutual Insurance Co. shows that 50 fires started in cotton pickers from foreign matter in the stock (four cases being caused by matches), while 29 originated in cotton pickers from various causes. Six woolen pickers' fires were due to foreign matter in stock. Friction on cotton mules caused ten fires, friction on cards eight, spontaneous combustion of oily waste 13, and spontaneous ignition of dyed goods, chemicals, dust, etc., 11. Seventy-six per cent. were day fires, the average claim on which was $967; the average on night fires, $15,011.

—Capt. E. A. Smyth, president and treasurer of the Pelzer Mfg. Co., Pelzer, S. C., has been North placing additional orders for machinery for his new mill. He has placed his entire order for revolving flat cards and drawing frames with the Pettee Machine Works, Newton Upper Falls, Mass.

—Marshall, Texas, will donate $35,000 to a cotton mill or other factory, with a weekly pay roll of $4000 or over. R. L. Jennings, of that place, will reply to letters.

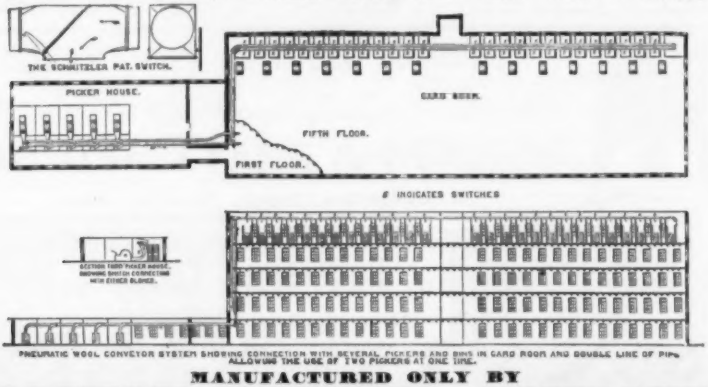
—The M. A. Furbush & Son Machine Co., of Philadelphia, have just sold to Messrs. Joseph Lomax & Son, of the same city, two of their new high speed Murkland ingrain carpet looms.

—Henson Bros., of Germantown, Pa., have started in the manufacture of edgings for nearly all purposes. They are making some very pretty patterns and using good stock.

THE BOSTON PNEUMATIC CONVEYOR

For the Rapid Handling of Wool, Cotton Stock, Rags, Excelsior, Jute and all kinds of Fibrous Material, wet or dry.

Using the Boston Patent Wool Fan and Patent Switch.



PNEUMATIC WOOL CONVEYOR SYSTEM SHOWING CONNECTION WITH SEVERAL PICKERS AND BINS IN CARD ROOM AND DOUBLE LINE OF PIPE ALLOWING THE USE OF TWO PICKERS AT ONE TIME.

MANUFACTURED ONLY BY

BOSTON BLOWER COMPANY,

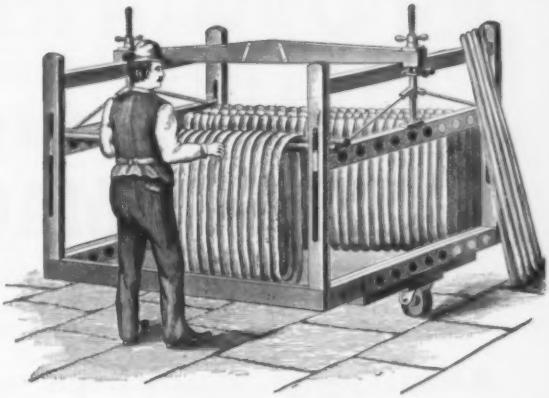
BOSTON, MASS.

THE WOLSTENHOLME DYEING MACHINE.

IT SPEAKS FOR ITSELF.

The only Practical, Simply-Constructed, Labor-Saving Device for Skein Yarn or Slubbing Dyeing ever offered to the Trade; will save THREE FOURTHS in labor and produce better results. Two Frames supplied with each machine.

Patented in the United States, Canada and Europe.

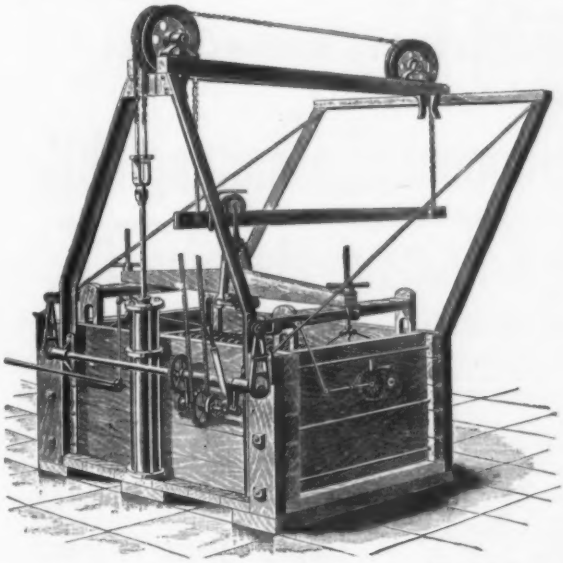


Manner of Filling Frame with Yarn, which is done in less time than the same quantity can be put on the sticks for hand dyeing.

NO FELTING OF FINE WORSTED OR WOOLEN YARNS.

FOR STANDING BATH WORK ON COTTON IT HAS NO EQUAL.

Operated by One Man. **One Frame Filled while other is being Dyed.**



The Lowest Priced Machine In the Market.

Double the Capacity of Any Other.

Improved and Perfected.

Back View of Machine showing its Operating Mechanism.

Any further information, prices, etc., will be cheerfully furnished by

DILL SPOOL SUPPORT CO.,

N. E. Corner Hancock Street and Lehigh Avenue, Philadelphia, Pa.

Where Machines can be seen in operation, and facts and figures will be furnished.

NYE & TREDICK,

Manufacturers of Plain and Automatic

CIRCULAR RIB
KNITTING MACHINERY

For Knitting Ribbed Shirts, Drawers, Tights, Combinations, Skirts, Jackets, Caps, Bicycle and Athletic Suits, Hosiery, Shirt-Borders, Cuffs, Etc.

Auxilliary Machines and Supplies.

Sewing, Crocheting and Finishing Machinery, Seamless Knitters, Winders, Loopers, Presses and Shaping Boards; also, Engines, Boilers, Shafting and Pulleys.

606 Arch St., Philadelphia, Pa., U. S. A.

CHICAGO OFFICE:

18-30 W. RANDOLPH ST., CHICAGO, ILL.

ESTIMATES GIVEN FOR A

Complete Equipment of a Knitting Mill.

Franz & Pope Knitting Machine Co.,

BUCYRUS, OHIO.

ESTABLISHED 1868.

Original builders of Seamless Knitters.

WE STILL LEAD?

KNITTERS

Automatic Seamless Knitters, Loopers, Steam Presses, Hosiery Brushing Machines, Ribbers, Mitten Machines, etc.

CHICAGO OFFICE:
1001, Ellsworth Bldg.
353 Dearborn St.

Complete Hosiery Mill Outfits. Builders of Knitting Machinery for Special Purposes

ALL MACHINES GUARANTEED.

Knit.

New Mills.

—*MICHIGAN, Grand Rapids. The new company, recently reported at this place, is called the Grand Rapids Knitting Co. They will manufacture ladies' and gents' fashioned underwear, using seven knitting machines. E. B. Fisher is president of the company, and C. W. Hayes, treasurer.

—*MINNESOTA, Rushford. The hosiery factory recently reported at this place, is now an assured fact. The company to operate the plant consist of J. Webster & Sons, of La Crescent, and R. Putnam, of La Crosse, Wis.

—NEW JERSEY, Washington. Frank B. Mitchell has broken ground for the erection of an underwear factory at this place. The building will be a two-story frame structure, 20x40 feet.

—*NEW YORK, Amsterdam. The new Amsterdam Knitting Co., Zeyst & Voorhees, proprietors, inform us that they will have their plant ready to be put in operation by March. They will put in 25 knitting machines for the manufacture of knit gloves, mitten linings and fulled goods.

—*NEW YORK, Amsterdam. Messrs. Lindsay, Dodds & Barnes will start up a new plant on the first of March, in the manufacture of ladies' ribbed underwear. Eighteen knitting machines will be put in, and steam power will be used. This project was erroneously published as at Glen Falls.

—NEW YORK, Candor. It is rumored that the buildings on Foundry Street, owned by Booth Bros., will be sold and converted into a knitting factory.

—NEW YORK, Cohoes. The Star Knitting Co. will erect a new five-story brick building on North Mohawk St. The building will be 120x30 feet, and will be equipped with new machinery throughout.

—*NEW YORK, Oneida. Concerning the new knitting mill which Thos. Morgan is erecting, we are informed that it will be ready for occupancy by the first of March. Eight knitting machines will be put in, and ladies' and gents' hosiery will be manufactured.

—ONTARIO, Peterboro. Mr. A. Close, of the Universal Knitting Co., Toronto, will, it is reported, build a cotton mill at this place. The structure will be 100x45 feet in size.

—PENNSYLVANIA, Bristol. The new hosiery factory, built by Howard Williams, is nearly completed, and will be put in operation at an early date.

—PENNSYLVANIA, Easton. It is reported that a new knitting mill will be built in Easton in the Spring.

—PENNSYLVANIA, Philadelphia. A new plant to be called the Continental Knitting Mill, is to be established on Emerald St., below Somerset, by Thos. Lytle. The structure will be 130x40 feet, five stories high. Contract for building has been let to Frederick B. Franks. Sporting and other kinds of goods will be manufactured.

—PENNSYLVANIA, Philadelphia. Messrs. Powell Bros. are looking for a site near Chicago, on which to erect a knitting factory to supply their Western trade.

—PENNSYLVANIA, Spring City. A new knitting mill for the manufacture of underwear will be started in a few weeks. The new company is composed of Frank J. Eiler, F. Guiton and Harry Booth.

THE
KEYSTONE
KNITTER
For Seamless Hosiery.

CYLINDERS
OF
Forged
Steel

With bevel top for perfecting the stitch in the plain fabric and closing the gore in the heel and toe.

Automatic Ribbers, Loopers, Winders, Steam Presses, etc.

Keystone Knitting Machine Man'f'g Co.,
1716-20 NO. FIFTH ST., PHILADELPHIA, PA.

CRANE MFG. CO.
LAKEPORT, N. H.
Spring Needle Circular Knitting Machine
For Hosiery, Shirts, Drawers, Jersey Cloth and Stockinet.
A Specialty of Hardened Bladed Burr Wheels with Self-Oiling Brackets.

The BALLOU
Automatic Ribbed Knitting Machine
Built with **Sectional Cam Ring** and the most perfect **weight take-up**. Best, Strongest and Most Durable Machine. **Two Feed Double Knee Machines.**
We can add to our own or other makes now in use. Also Brushing Machines. **Lewis Jones, Bristol, Pa.**

Pepper Manufacturing Co.

Lakeport, N. H.,

Manufacturers of

Knitting Machinery,

INCLUDING

Pepper's Flat-Ribbed Cuff Machine,

Automatic Welt and Loose Course Machine for Sock Tops. New Circular Stripes with Welt, Loose Course and Striping (Automatic), for Shirt Cuffs, Sock Tops, Hose Legs, Wristers, etc.

All kinds of

CIRCULAR RIBBED MACHINES,

For Men's Underwear, Ladies' and Misses' Hose Legs & Legnigs.

CORRESPONDENCE SOLICITED.

THE

Merrow High Speed Crochet

and Scallop or Shell Machines.

For finishing the edges of Knit Goods, Bed Blankets, Horse Blankets, or other fabrics.

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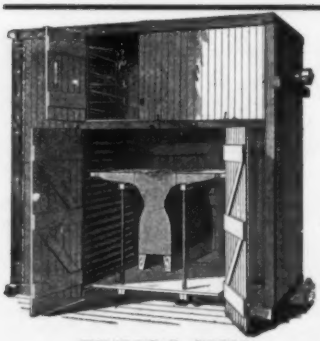
THE MERROW MACHINE CO.,

133 Sheldon St.. HARTFORD. CONN

SHIRT Border Machines

Cuff Machines. Four and Five Section Flat



UNDERWEAR DRYER.

Cyclone Dryers

—FOR—

Stockings, Underwear, Stock, Yarns, Cloth, Etc.

Textile Machinery and Shafting Work.

PHILADELPHIA

TEXTILE MACHINERY CO

Hancock St., above Lehigh Ave.,

PHILADELPHIA, PA.

—RHODE ISLAND, Valley Falls. The Eclipse Mfg. Co., whose plant was burned last fall, will build a new mill, commencing on the first of April. The structure will be 126x50 feet, 3-story, frame, with boiler house, 36x24 feet. They are in the market for boiler, engine, pump, shafting, belting and 250 knitting machines. W. E. Keach, the superintendent, will do the buying for the firm.

—*TENNESSEE, Elizabeth. The Elizabeth Knitting Co., previously reported, inform us that they will have their plant completed and ready for operation by the first of March. They have put in 27 knitting machines, and will manufacture gents' seamless half hose, using water power.

Enlargements and Improvements.

—CONNECTICUT, Winsted. The New England Knitting Co. will build an addition to their plant, which will be eighty feet long and four stories high. The company have just completed one addition which fronts on Main St.

—NOVA SCOTIA, Truro. New machinery has been placed in the knitting mill of C. E. Stanfield, and the firm will now manufacture finished hose, men's woolen and merino underwear.

—PENNSYLVANIA, Germantown Messrs. Flavell Bros. are having plans drawn for a four-story addition, 20x68 feet, to their hosiery mill on Mill St.

—PENNSYLVANIA, West Chester. The West Chester Knitting Co. will put in on electric light plant.

—*SOUTH CAROLINA, Pelham. The Pelham Mills, reported as adding a knitting department, inform us that 20 knitting machines will be put in for the manufacture of ladies' seamless hose, children's hose, and half hose. A dye house will be built.

Mills Starting Up.

—CONNECTICUT, New Britain. The New Britain Knitting Co., after an idleness of several months, have resumed operations.

—CONNECTICUT, Pine Meadow. The Tunxis Hosiery & Dyeing Co. plant will be started up, having been closed on account of the illness of Mr. Schott, the proprietor.

—GEORGIA, Barnesville. The Barnesville Hosiery Co., recently organized, have commenced work at their new mill.

—MASSACHUSETTS, Newton Lower Falls. It has been announced that the Dudley Mills will be started up shortly.

—NEW YORK, Hagaman's Mills. The Anchor Hosiery Mills, which have been idle for some time, have started up on samples, and expect to be running in full within a short time.

—NEW YORK, Waterford. The Ormsby Textile Co. will start up their plant on full time at an early date.

Mills Shutting Down.

—VERMONT, Bennington. The Valentine Knitting Co. have shut down their plant. Repairs will be made while the mill is idle.

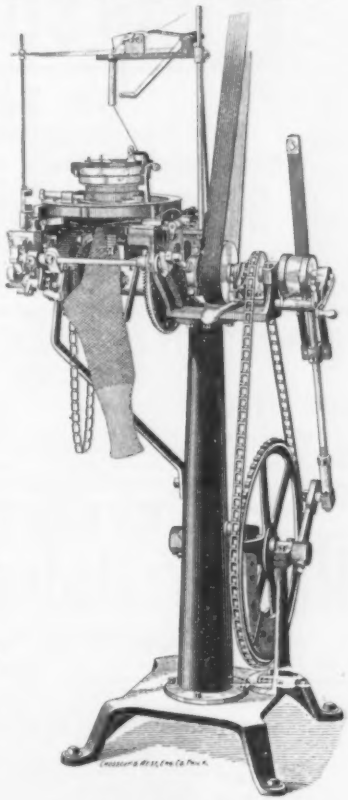
Frank Payton, for nine years overseer of the spinning room of the Halifax Mills, Lakeport, N. H., has resigned, to engage in the manufacture of yarn in Lowell with his father. He will be succeeded by Arthur Broadhead. Mr. Payton, upon retiring, was presented with a silver service by his associates.

AUTOMATIC

SEAMLESS KNITTER

For making Seamless Hosiery of all Grades.

BEST QUALITY FABRIC.
LARGEST PRODUCTION.
SMALLEST COST FOR LABOR.



Plain and Automatic Machinery

For Knitting Ribbed Shirts, Drawers, Combination Suits, Skirts, Tights, Shirt Borders, Cuffs, Sleeves, Tops for Half-Hose, Hosiery Etc.

ALL OUR MACHINERY
GUARANTEED
IN EVERY PARTICULAR.

NATIONAL
Automatic Knitter Co.,

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Why do Knitting-Machine Builders Try to Produce a Machine to Make a

BRANSON SOCK?

JAS. L. BRANSON,

OF THE BRANSON MACHINE COMPANY,

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Is the original inventor and manufacturer of this class of Machines, and, like most originators, manages to keep ahead of all imitators. Send for Circular A.

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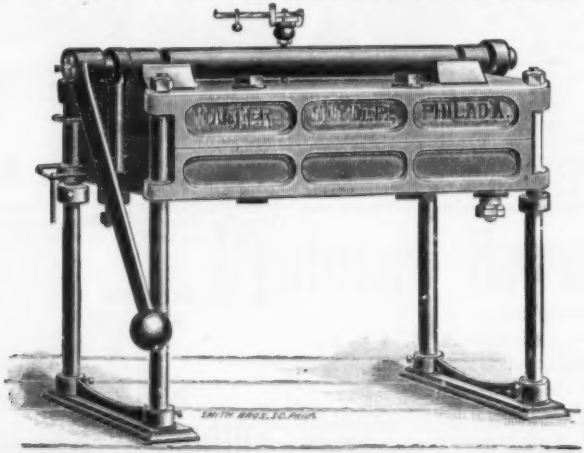
Originators of the Weldless Forged Steel Cylinder. Dials, and Cylinders all sizes up to 24 inch, for the different Circular Rib Frames, Seamless Knitters, etc. The Finest that can be cut, and the Best as to Material Accuracy and Durability.

EVERYTHING FOR

Hosiery AND Underwear Knitting Mills

NEW OR SECOND-HAND.



JAMES TAYLOR, 835 Arch Street, PHILADELPHIA.

Woolen.

New Mills.

—CONNECTICUT, Stamford. It is reported that F. A. Springer and S. T. Wilson, of Sanford, Me., are organizing a company at this place, to manufacture carriage robes and blankets.

—MAINE, Damariscotta. There is talk of the erection of a woolen mill at this place. J. E. Mulligan can probably give information.

—RHODE ISLAND, Bridgeton. Machinery is arriving for the new Laurel Hill Yarn Mill, which was destroyed by fire a few months ago.

—RHODE ISLAND, Harrisville. The machinery is being placed in the new mill of Wm. E. Tinkham & Son, and it is understood that the company will build another and a larger mill sometime in the near future.

—TENNESSEE, Chattanooga. The new woolen mill company organized at Chattanooga will be called the East Lake Woolen Mills. They will put in 100 looms and three sets of cards, manufacturing jeans. Work will be started on the construction of the buildings in May, and they expect to be ready for production by September. They will have a dye house, and will use steam power.

Enlargements and Improvements.

—MAINE, Lisbon Falls. The Worumbo Mfg. Co. are putting 18 new looms into their plant.

—MAINE, North Vassalboro. The Vassalboro Woolen Mills will build an additional story to their plant, after which they will have a larger department for the manufacture of worsted goods. H. Purington & Co., of Augusta, have the contract for the building.

—MAINE, Rumford Falls. The Rumford Falls Woolen Co. have placed five additional looms into their plant.

—MASSACHUSETTS, Pittsfield. The Pontoosuc Woolen Mfg. Co. contemplate putting in additional machinery into their plant.

—MICHIGAN, Flint. It is reported that Stone, Atwood & Co., will enlarge their plant in order to make a greater variety of men's wear woolens.

—NEW JERSEY, Somerville. The Somerville Woolen Mills, whom we reported were enlarging their plant, inform us that they will add three sets of cards, 25 broad looms and 936 woolen spindles. A three story addition, 50x54 feet, will also be erected.

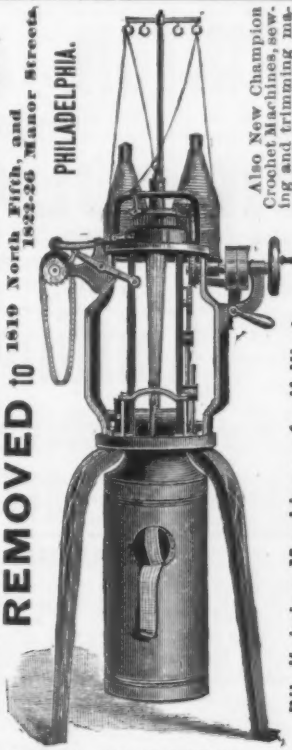
—PENNSYLVANIA, Philadelphia. The Tracy Worsted Mill Co. are building an addition to their yarn mill on Spruce Street.

—PENNSYLVANIA, Reynoldsville. New machinery is being purchased to increase the capacity of the plant of Sykes, Allis & Moorhouse.

—RHODE ISLAND, Peacedale. The Peacedale Mfg. Co. have put 50 new looms into their plant, also new machinery in the worsted spinning department. They are making changes and improvements throughout the mill.

—RHODE ISLAND, Woonsocket. The Woonsocket Worsted Mills will build a three story addition to their plant in a short time. New spinning machinery has already been purchased.

CHAMPION SEWING MACHINE COMPANY,
REMOVED to 1819 North Fifth, and 1822-26 Manor Streets
PHILADELPHIA.



Also New Champion Crochet Machines, sewing and trimming machines, etc. Send for descriptions.

Rib Knitting Machines of all Kinds.

WE NEED NO SPECIAL POINT

To prevent the needle from picking up the brass, nor special mechanism to prevent injury to the brass, for the needle in our looper never strikes anywhere but the centre of the point.

HEPWORTH & CO.,
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LACINGS For Overshirts and Underwear,
Both Tipped and Tasseled, and
OVERSHIRT NOVELTIES.
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HEPNER & HORWITZ, 84 Leonard St., N. Y.

BUSCH & LINN,
(Formerly connected with J. C. Goodwin.)
General Repairers for all SEWING MACHINES,
Fabric Trimmers, Folders, Cutting Machines, and Experimental Work.
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Stanton & Lewis, 316 & 318 Branch Street, Philadelphia, Pa.

Central Steam Forge.

Special Machinery for Forging Weldless Knitting Machine Cylinders. Dials of best Steel to order.

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Builders of a Full Line of

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Sewing Machines, with or without Trimmers.

SPECIAL FEATURES:

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All machines have Ball and Socket Bearings, with Hardened and Ground Working Parts

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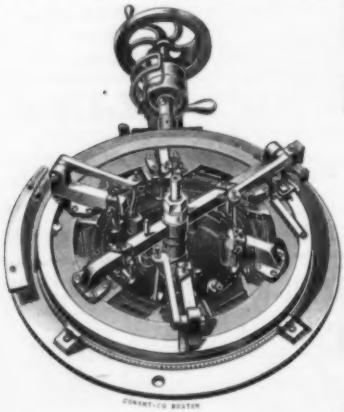
Manufactory, Second and Diamond Sts , Philadelphia.

SOMETHING NEW UNDER THE SUN

TO

Manufacturers of Ribbed Underwear,

Sweaters, Cardigan Jackets, Leggins, Cuffs, Etc., who are not acquainted with the



Leighton Knitting Machines,

WHICH

KNIT THE GOODS

WITH THE

Greatest Economy.

Manufacturers who are using The Leighton Machines, know that it **FILLS THE BILL** completely. Correspondence is solicited from parties wishing to establish a Knitting Plant, or who may wish to improve their present line of goods. Address,

Leighton Machine Co.

MANCHESTER, N. H.

Business Established in 1873.

Mills Starting Up.

—DELAWARE, Stanton. Work has been resumed at the Kiamensi Woolen Mills, after an extended shut down.

—ILLINOIS, Fairfield. The Fairfield Woolen Mills, which have been closed for about eighteen months, have been leased to N. C. Cowgill, Frank Hill and A. H. Baker, of Carthage, Mo., who will put the plant in operation.

—ILLINOIS, Lacon. The Lacon woolen mill has been leased to John Grieves & Sons, who have put the plant in operation.

—MASSACHUSETTS, Williamsburg. The Hampshire Woolen Mills Co., whose plant has been idle for some time, will resume operations about the middle of March.

—NEW YORK, Arcade. The woolen mill of Isaac Smith, which has been idle for some time, will be put in operation.

—OHIO, Zanesville. The Zanesville Woolen Mfg. Co. have started up their plant with a full force of help. They manufacture blankets, jeans and yarns.

—RHODE ISLAND, Central Falls. The No. 2 woolen mill, at Blackstone, has been leased by the Farwell Worsted Mills, at this place, who will operate the same in the manufacture of worsted goods.

—WISCONSIN, Jefferson. The Jefferson Woolen Mills have started up, after an idleness of nearly three years. They manufacture flannels, blankets and yarns.

—WISCONSIN, Racine. The Racine Woolen Mills, which have been closed for several months, were started up recently, but with a reduction in wages of from 10 to 15 per cent. Some of the weavers refuse to work, and it is uncertain whether the mills will be continued running or not.

Wm. Breedon & Son,
Manufacturers of
Spring Knitting Needles,
And Burr Blades of all kinds.
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STAR NEEDLE CO.
Spring Knitting Needles and Points from the Best Cast Steel. Satisfaction Guaranteed.

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Latch Needles,
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Excelsior NEEDLES
The Best Hosiery Needle in the market.
Manufactured by
Wardwell Needle Co., Lakeport, N. H.

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MANUFACTURERS OF ALL KINDS OF
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Knitting Needles
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SPRING AND RIB
Knitting Needles.
Fine needles for Plush, Cap and Balbriggan work a specialty.
A sample 1000 will speak for themselves.
DAVID J. AMES,
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ORION TREAT,
MANUFACTURER OF
SCREW RIVETED BALMORAL AND DOUBLE RIB NEEDLES.
(Patented May 6, 1890.)
Manchester Green, - - Conn
All work guaranteed.

H. LYDALL & FOULDS,
Manufacturers of all kinds of
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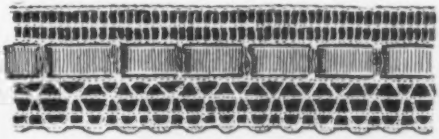
Pat. Screw Rivet Balmoral Needles a specialty
MANCHESTER, CONN.

PERSEVERANCE MILLS.
Krout & Fite Man'f'g Co., MANUFACTURERS OF
SILK AND COTTON NARROW FABRICS,
Lace  **Edgings**
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RATES LOWER AND SYSTEM SAFER THAN ANY OTHER METHOD.

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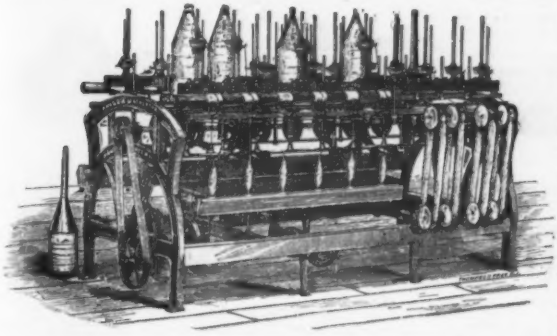

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WINDERS for Hosiery Manufacturers. Wind from cop, skein or bobbin.

Improved Upright Spoolers,

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We make a complete line of this machinery, and have hundreds of machines in satisfactory operation all over the country. We invite correspondence.

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Metal Edge Boxes or Heavy Goods.

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CIRCULAR RIB KNITTING MACHINES,

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Novelty Knitting Machine Co.,

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SPRING NEEDLE KNITTING MACHINERY,

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BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

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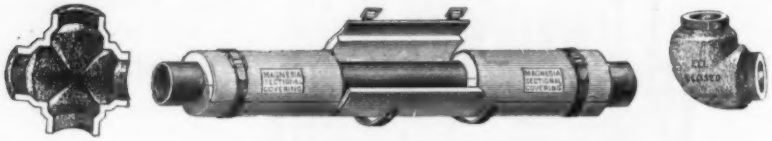

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THE GREAT COAL-SAVER,

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Philadelphia, Macan & Co., 1420 Callowhill St.
Baltimore, Wallace & Bro., 432 E. Pratt St.
Washington, Wm. B Morgan, Builders' Exch.
New Orleans, Delbert Engineering Company, 23 Union St.
Memphis, Symmes & Co , 192 Front St.
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Denver, C. W. Badgley & Co., 18th & Market Sts.
Salt Lake City, Utah & Montana Machinery Co.
Butte City, Mont., R. W. James.
San Francisco, De Solla & Deussing 2 California St.

Facts and Gossip.

—CONNECTICUT, Norwalk. The stockholders of the Union Mfg. Co. have raised $25,000, expecting to raise $25,000 additional, for the purpose of reorganizing the company and resuming business.

—DELAWARE, Dover. The entire plant of the Dover Hosiery Co., except the building, engine and shafting, has been sold to parties in Fort Wayne, Ind., and is being shipped to that place.

—MAINE, Dexter. The Dews Woolen Co. have filed certificate of organization. They have capital stock of $10,000, of which $6000 has been paid in.

—MAINE, Readfield. The woolen mill of Chas. Greenwood & Co. has been sold to Mr. Appleyard, who will operate the plant in the manufacture of heavy woolens for men's wear.

—MAINE, Saco. Elmer E. Page, agent of the Falls and Shetucket Mills, Norwich, Conn., has been elected to succeed Mr. Franklin Nourse as agent of the York Mills.

—MASSACHUSETTS, Otter River. The woolen mills of the Otter River Co., recently purchased by R. B. Denny, 143 Federal St., Boston, have been sold to Mr. A. H. Turner, of Worcester. Mr. Turner will take possession about May 1st.

—MASSACHUSETTS, Spencer. The No. 1 Woolen Mill at this place has been sold to Newton Darling, who is changing over the machinery for the manufacture of a different grade of goods than heretofore made, and will have the plant ready for operation by the first of March.

—NEW JERSEY, Peetzburgh. It is reported that a concern manufacturing braids, will locate at this place.

—NEW YORK, Auburn. The Canoga Woolen Mill property has been sold at public sale to the Bank of Auburn, for $13,000.

—NEW YORK, Fonda. It is reported that S. Levi, of Amsterdam, will purchase the knitting mill at this place, and will put it in operation.

—NEW YORK. The Northville Knitting Mill has been sold at assignee sale to George E. Van Arnam, for $21000. Mr. Van Arnam and others held a mortgage on the plant for $5800. The concern was indebted to several large companies for machinery purchased, who, it is reported, will begin legal action endeavoring to set aside the sale and recover their claims.

—NORTH CAROLINA, Mountain Island. The Wm. J. Hooper Mfg. Co., succeeding Wm. J. Hooper & Sons, has been incorporated to manufacture twines, nettings, fishing tackle, cordage, etc. Capital $100,000.

—PENNSYLVANIA, Myerstown. The knitting mill of I. W. Forry & Son will be removed to Shamokin, where the company operate another knitting mill of larger size.

—UTAH, Salt Lake City. It is reported that the Provo Woolen Mills and the Deseret Woolen Mills are to be consolidated under one management, with a new name for the joint company. Work has been resumed at the Provo Woolen Mills after an idleness of three weeks.

—WISCONSIN, Milwaukee. Edward Ferguson has brought suit, in the Superior Court of Wisconsin, against Louis F. Schecker, Henry W. Ramien and Wm. H. Inbusch, in which he asks that a receiver may be appointed for the Milwaukee Worsted Mills, on the ground of mismanagement.

Electric Power AND Electric Motors

IN

Cotton Mills, Woolen Mills

AND

Textile Factories

RESULT IN

ECONOMICAL AND SATISFACTORY OPERATION.

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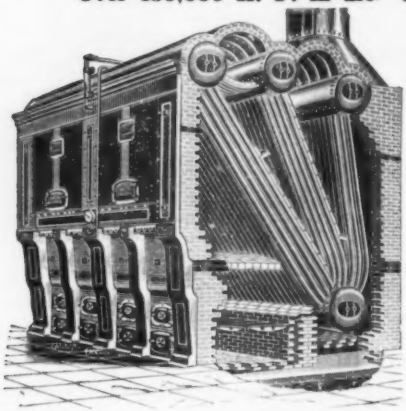
Over 150,000 H. P. in use. 45,000 H. P. sold in 1892.



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Prices very reasonable. Catalogues, testimonials and complete information promptly furnished.

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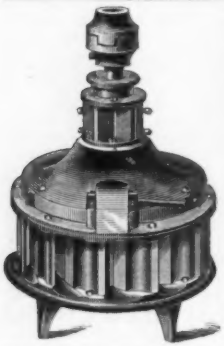

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Percentage:
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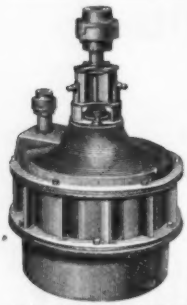
NEW IMPROVED
STANDARD TURBINE.

It gives on either a Vertical or Horizontal shaft more power for its price, yields a greater percentage for water used, either with full or part gate drawn, and is the simplest, most durable and best finished wheel made. Send for illustrated catalogue and state head of water and power required.

Burnham Bros., York, Pa.
12 SOUTH GEORGE STREET.



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Suitable for Light or Heavy Service.
Globe Outer-Cases and special Wrought or Cast Iron Flumes.
SUITABLE FOR ANY SITUATION.
GEARINGof all kinds, SHAFTING, PULLEYS and everything required for a complete POWER PLANT.

SATISFACTION GUARANTEED. Mention this paper.

Designs and Estimates Furnished on Application. Send for Catalague.

J. E. RHOADS & SONS
MANUFACTURERS OF
GILT EDGE
LEATHER BELTING BELT PRESERVERS
239 MARKET ST PHILADELPHIA. WILIMINGTON. DEL.

Fires.

—CONNECTICUT, Mystic. Fire at the Rawlitzer Brothers' mill recently, caused a loss of between $2000 and $3000.

—NEW JERSEY, Paterson. The silk mill of Doherty & Wadsworth has been destroyed by fire. The total loss is estimated at $300,000. Insurance $240,000.

—NEW YORK, New York. Fire in the silk mill of Hubbell & Catoir, 659 Hudson St., recently injured the plant to the extent of $40,000.

—PENNSYLVANIA, Upland. Two of the stockhouses of Wallworth & Sons' shoddy plant were destroyed by fire recently. The loss is from $5000 to $6000. Insured.

Failures and Suspensions.

—NEW YORK, Binghamton. Eli S. Meeker has been appointed receiver of the Binghamton Woolen Co., on application of a majority of the stockholders. The liabilities of the company are said to be $50,000 and the assets $38,000.

—PENNSYLVANIA, Media. The Rose Valley Cotton & Woolen Mills are in the hands of the sheriff, on an execution issued on a judgment for $21,000.

Mills Shutting Down.

—MAINE, Buxton. The Saco River Woolen Co. have shut down their mill temporarily.

—MAINE, Dover. The Brown Mfg. Co. have shut down their woolen mill for a short time, in order to make some improvements.

—MAINE, Old Town. The Old Town Woolen Mill has partially shut down, and operations throughout the entire plant will be suspended for a short time.

—NEW YORK, Candor. The Candor Blanket Co. have shut down their mill for an indefinite period.

—NEW YORK, Shushan. The Eagleville Woolen Mill, Hatch & Robertson, proprietors, has shut down for a few weeks in order to make repairs.

Silk.

New Mills.

—NEW JERSEY, Bloomfield. The Watsessing Silk Mfg. Co., a new concern, have rented the Freeman shoe factory, and are fitting it up for a silk mill.

—NEW YORK, Newton. Mr. Oliphant, of the Unionville Silk Mill, which was recently burned, is reported to be negotiating with parties in Newton for the establishment of a silk mill.

—PENNSYLVANIA, Carbondale. Messrs. Klots Bros., manufacturers of thrown silk, tram and organzine, who were recently burned out at 507 West 50th St., N. Y., have completed arrangements with the Board of Trade, and ground will be broken about the middle of March for a new factory. It will be fitted up with entirely new machinery, which has been contracted for with Morrison, of Willimantic. They have not contracted for boilers, two 150 h.p. horizontal tubular, Corliss engine, 150 h.p. feed water heater, pumps, boiler room equipment, exhaust steam heating system, 500 incandescent light plant.

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Manufacturers of
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Aprons for Worsted Machinery, Roller Covers and Lace Leather.
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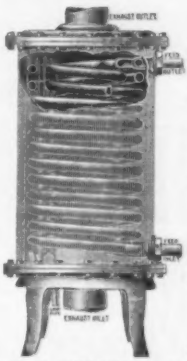

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COPPER TUBING
The construction is such that there are
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inside of the shells consequently there are
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For Loose Pulleys and other bearings. Perfectly clean. No cutting or danger of fire from overheating. Send for Loose Pulley circular No. 5.
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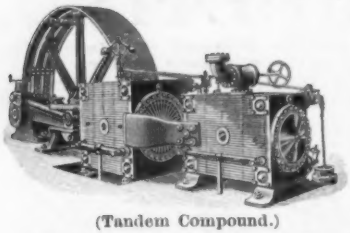

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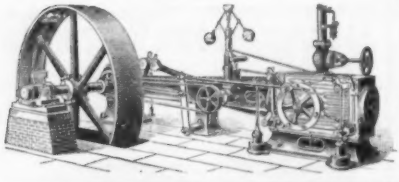

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LUBRICATOR CANDLE

Perfect Lubrication without Drip Guaranteed. 50 per cent. cheaper than Oils Satisfactory trial given. Send for catalogue.

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INDICATORS, REDUCING WHEELS, PLANIMETERS, THREE WAY COCKS, SHAKE GRATE BARS, MINE ELIMINATORS, STEAM SEPARATORS, OIL FILTERS, EXTRACTORS, FEED WATER HEATERS, PUMPS, A NUMBER OF OTHER STEAM SPECIALTIES.

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The Curtis Patent Damper Regulator

Is the cheapest and at the same time the

Most Reliable and Efficient

It is the only regulator which is guaranteed to change direction on a variation of one pound steam pressure.

IT WILL CONTROL ANY DAMPER.

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Builder of VERTICAL STEAM ENGINES and BOILERS. Peculiar for their economy of space and fuel, safety and quickness in raising steam.

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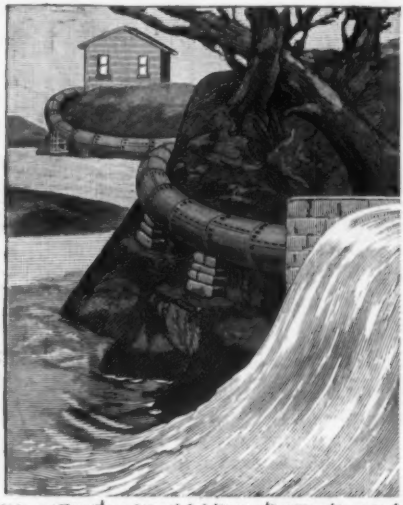
Engine Builders and Dealers supplied with Governors, Stop Valves, Safety Valves, etc.

IMPROVED CEMENT LINED
WROUGHT STEEL PEN STOCKS.



Have you a water power that you wish to develop? or a defective wooden penstock that you must repair or replace? Then secure descriptive circular and price of my steel penstocks. They are cheaper than wood, they are indestructible, they are absolutely water tight; they are constructed on the ground where they are to be used, therefore can be adapted to the most difficult places. They will stand any head of water, they can be made of any size desired; they have been tested and approved for years. For full information and price, address the manufacturer,

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Proper Lubricant for Cycle Chains.

It is conceded by all wheelmen that some lubricant is needed to prevent wear of chain and sprocket wheel; such a lubricant not only prevents wear but very largely increases speed and ease of driving. Oil or grease, while useful for the moment, catches and holds dust or dirt. After much experimenting it has been found that graphite makes the most perfect lubricant, when the right kind is used and properly prepared

The word graphite, like the word charity, covers a multitude of sins. Under the name of graphite lubricant are found compounds of cheap black-lead, stove polish, foundry facings, soap stone, etc. Safety in buying, and the surety of getting the best graphite lubricant made, lie in purchasing of a firm of world wide reputation and long experience. Such a firm is the Joseph Dixon Crucible Co., of Jersey City, N. J. They have mined and manipulated graphite for nearly seventy years, and when called upon by leading wheelmen to furnish a cycle lubricant that would meet the fullest requirements of the cycler, they first purchased samples of all the chain lubricants in the market and analyzed them, and then selected from their choicest stocks of graphite a brand of graphite of unequalled smoothness, and produced a stick, or solid lubricant, which will not gum or hold dirt and dust, but which will so thoroughly lubricate the chain and sprockets that the wear will be reduced to the slightest degree, and ease of riding and speed greatly increased.

The Goulds Manufacturing Co.

We are in receipt of the handsome cloth bound 1895-6 catalogue of the Goulds Mfg. Co., of Seneca Falls, New York, containing one of the most complete lists of pumps and pump supplies ever brought to our attention.

This company formerly sold their goods through the various stores of "The Fairbanks Co.," but have recently established agencies of their own, among them being one at 25 Oliver St., Boston, which is in charge of Mr. J. McOuat Mackie, formerly of Seneca Falls, whose thorough knowledge of the business enables him to give the best advice on all questions which come up in connection with a water supply, large or small.

—Howland Croft, Sons & Co., of Camden, N. J., are just starting some new Furbush worsted cards.

LATEST FAD IN SEASON
Healthy and Invigorating
RAW SILK FRICTION TOWELS
Size, 18x40 and 24x50, bordered and fringed. **Chest Protectors,** highly recommended. **Wash Rags, Flesh Gloves, etc.** Mail $1 for samples.
American Silk Mfg. Co., 311 Walnut St., Philadelphia

A Cheap Tin Roof

MAY remain leakless for two years. A good roof ought to last ten times as long. The cheap roof will have to be taken off and replaced in less than five years. The good roof is good for twenty

We make absolutely the Best Roofing Tin.

THE very best. We can prove it. It is best because it will last longer than any other. Because it costs less to keep it in repair. Because it is most economical in the long run.

IT is a significant fact that no roofing plates in the United States sell beside ours at an equal price. Other tin finds a market by sinking its price to the level of its quality. If you care to be roof-wise, write to us for information.

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HOOSAC TUNNEL ROUTE,
SHORT LINE
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—TO—
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PALACE SLEEPING CARS
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Trains leave Boston, Causeway Street Passenger station at
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Capital, $1,200,000.

100,000 SPINDLES.
Weekly Product 120,000 lbs.
14's to 160's.

HIGH GRADE

Cotton Yarns,

SPECIALLY ADAPTED FOR

Silk, Plush, Upholstery & Hosiery

MANUFACTURERS.

American Peelers. Sea Island. Egyptian Oottons.

Superior Qualities Combed and Carded—Furnished in singles, 2, 3, 4 and 6-ply chain warps, skeins, beams, spools, tubes, cones and Lisle Thread yarns.

Cops for Weaving and Twisting. Cops for Hosiery.

GLOBE YARN MILLS,

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Capital Stock, $500,000.

Sanford Spinning Co

FALL RIVER, MASS.

30,000 Spindles. Weekly product, 50,000 pounds 14s to 40s.

NOVELTY COTTON YARNS,

FROM AMERICAN PEELERS AND EGYPTIAN COTTONS.

OUR SPECIALTY: Superior qualities of Hosiery Yarns, Natural Shades of Cottons, and in Colors, Jaegers, Mixes, and Bleached, Hosiery Cops on Long Tubes, Skeins, Tubes, Cones and Lisle Thread Yarns. Furnished in Carded and Combed Qualities in Singles, 2, 3 and 4-plies.

YARN DEPARTMENT.

The Eastern Yarn Market.

Double and Single Roving Cotton Yarn. Knitters are placing few orders and those very cautiously. The season is not yet fairly opened. Manufacturers of ribbed underwear can be said to be doing nothing. Judging the future by experience one may still hope for a solid trade. Last year the knitters did not get fully underway until August, and an excellent business was done. Plenty of inquiries are noted for heavy weight yarns, although it is doubtful if many orders have been placed. Much cotton yarn will be used thissea son in 1/28s and 1/8s for fleece lined underwear. Spring weight underwear is still in demand. Sweaters are being made to a very great extent, ribbed underwear mills that are really busy being engaged on this class of garments. The rubber lining trade continues slow on account of the continued shut down of the rubber trust.

We cannot help being impressed with the vast quantities of raw cotton being purchased and stored. Mills have purchased so much cotton that in many instances mill yards are full of raw cotton pilled up in immense columns. The writer passed one very large cotton establishment last week that had at least 5000 bales pilled up in this way. Southern mills have been getting most of the business, 8/3 ply, 8/4 ply, 2/20, 2/30s being mostly sold. Many of the commission houses are running short of some numbers. Prices continue low and it looks as if they might remain so for sometime. Many orders are being placed by weavers of woolen cloth for 2/30s, 2/40s, and other sizes for cotton worsteds. Hosiery manufacturers are placing orders, particularly for 1/9s, 1/10s, 1/11s.

Colored Yarn. Spinners are getting few orders, but many inquiries. Jaeger will be used considerably in flat underwear, also in fleece backed underwear. We also find a fairly satisfactory demand for 1/26s, in solid colors, and in this connection note that knitters are insisting on yarn that is free from leaf and specks. Silver grey mix is the coming shade for ribbed underwear. Knitters generally in Cohoes, Bennington and Amsterdam are doing a light business. The mills are all on specialties and light weight goods. Hosiery manufacturers are placing orders freely for colored yarns. Carded Egyptian yarn is in excellent demand and prices have advanced about one-half cent a pound. This class of yarn is being imported by Englishmen, although such a thing has been supposd impossible.

Combed Egyptian and Allen Seed Cotton Yarn. Business continues brisk on women's balbriggan and fine light weight underwear. Two-ply lisle yarn in 42s, 44s and 50s continues in demand. Some falling off in trade on mule yarns is observed. The numbers 1/20s, 1/36s, 1/40s are mostly called for in singles. By April 1, most of the mills now on balbriggans will be off on fleece lined underwear. The lisle yarn trade has this season been confined to a few spinners. The largest manufacturer of this class of yarn shifted this season much to the chagrin of many knitters; if orders had been heavy this season it would have been a serious matter for them.

WOOLEN YARN.

Spinners' business is very slow and its volume far from great. It is rather too early to expect much business, being between seasons. Buyers are moving cautiously because stock seems to be getting lower in price. We note, however, that the tendency just now is toward higher values. A few classes of stock have already advanced. Some orders have been given by weavers, one very large concern having recently placed orders for over 75,000 pounds.

Combined Capital Stock, $2,250,000 — Total Spindles, 170,000

WM. D. HOWLAND, Treas. BYRON F. CARD, Agent.

New Bedford Mfg. Co.,
Howland Mills Corp'n, *
Rotch Spinning Corp'n.

High . . . . Grade Cotton . . . . Yarns.

Single or Twisted,
Combed or Carded,
Hosiery Yarns,
Chain Warps,
Skeins, Spools
and Cops;
also on
Beams

FROM 4's TO 120's.

BYRON F. CARD, - Selling Agent,

New Bedford, Mass.

Underwear manufacturers and hosiery mills have placed some orders, business being principally on two-ply yarn. We see no reason why, when the proper time comes, there should not be the usual amount of business. A new loom is now on the market which it is said, will do twice as much work as the fastest Clay loom.

WORSTED YARNS.

Spinners continue busy. The run is on all classes of yarns, 2/40s, 2/50 Australian and 2/20, 2/32 and 2/36, 1/2 to 3/8 and quarter blood. Dress goods manufacturers are very busy as are also mills employed on cheviots. We do not believe, however, that weavers are sold up, nor that orders have been placed for yarn to a greater amount than will cover orders taken for cloth. Weavers are anxious about duplicate orders; they expect them but are not receiving as many as they should at this time of the year. This does not apply invariably as the business is very unevenly distributed and the large mills are sold up. The seasons are all out of gear since the late panic. Taking last year as a criterion all weavers will have as much business as they can swing. Foreigners are doing considerable business on fine suitings; on medium goods they are nowhere. Spinners have not got orders enough to last them through the season, although some are refusing orders and others are buying outside when they can. Novelty yarn spinners are doing a large business.

Manufacturers have made request for many sample lots of foreign yarn, but as yet there has been no great volume of orders placed, although Rockville is buying much yarn in England. Underwear manufacturers are buying considerable yarn at this time. After the dress goods business is over more yarn will be on the market. Much fancy yarn is being sold to the cloaking trade. Braids are not doing as well, just now, on account of the change in size of women's skirts for buyers do not know what length of braids to have put up to suit the new order of things. General business is quiet, and manufacturing business is in a very pecular position.

GRANT YARN CO.,
COMBED AND CARDED COTTON
YARNS 40s and above. AND
FITCHBURG, MASS. WARPS

O. H. SAMPSON & CO,
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Cotton, Woolen & Worsted Yarns.
All numbers on Hand and Made to Order.

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YARNS.
FINE IMPORTED YARNS A SPECIALTY.
54 Leonard St., New York.

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COTTON YARNS
ALL NUMBERS.
Chain Warps, Skeins, Cops, Cones, Beams, Spools, Colored and Grey Yarns. Hosiery and Combed Yarns.
20 Market Square, Room 53. Providence, R. I.

O. S. HAWES & BRO.,
COTTON and SILK YARNS,
All Forms and Numbers.
Imported Yarns a Specialty.
50 Bedford St., Fall River, Mass.

HADLEY
SPOOL COTTON AND FINE YARNS
COMPANY
COTTON SPINNERS.
MILLS AT HOLYOKE, MASS.

SPINNERS OF
FINE COTTON YARNS
30s TO 100s.
Gray, Bleached, or Colored. On cop, in skein on spools, cones or tubes.
Fine Cotton Warps, single and two-ply, in chain, etc.
95 Milk Street, BOSTON.

Wilkes-Barre Lace Mfg Co.
SPINNERS OF
COTTON YARNS.
Double-Carded, Frame-Spun,
Double-Roving, In Skeins.
30s TO 40s, TWO-PLY ONLY.
Wilkes-Barre, Pa.

JAMES CHADWICK & BRO., Limited.
SPINNERS OF
Fine Egyptian and Sea Island COTTON YARNS.
2, 3, 4 and 6 ply. Cop, Skein, Warp or Cone.
Mills: Jersey City, N. J.
New York: Cable Building, cor. Broadway and Houston Sts.
Philadelphia: 203 Chestnut St.

Hosiery AND Weaving Yarn
ALBERT IVINS GROLL, BOSTON.

The J. R. Montgomery Co.,
Manufacture
WINDSOR LOCKS, CONN.,
High Grade COTTON WARPS, IN FAST FANCY COLORS.
PRINTERS of COTTON WARPS, Wool, Worsted and Silk Yarns.
NOVELTY YARNS OF ALL KINDS.
BOUCLÉ, BOURITTE, FLAKE AND SLUB YARNS.

Some mills have no orders; others have more than they can fill. Prices are holding up very well.

Prices as below:

DOUBLE ROVING WHITE COP YARN.

11s and 12s	15 cts.
16s	16 cts.
20s	17 cts.

Jaeger and Camels Hair,

10s to 12s	15 cts.

Cones 1 cent extra.

Other colors quoted on application.

Egyptian Combed.

1/10s to 12s	19 cts.
1/20s	20 cts.
1/34s	26 cts.
1/40s	32 cts.
1/45s to 1/50s	34 cts.

Cones extra price.

ALLEN SEED COMBED.

1/10s	20 cts.
1/40s	32 cts.
2/40s	37 cts.

WOOLEN YARN.

Will quote on inquiry, as there is too great diversity to give satisfactory quotation.

WORSTED YARN.

Fine Australian.

2/40s	75 to 80 cts.

Other numbers in proportion.

On other qualities of Australian, spinners will not quote at this time as they are awaiting developments.

Half-blood Domestic.

2/40s	.65 cts.

DOMESTIC.

1/4 Blood,	
2/28s. 24s, 18s	52 cts.
2/32s	53 cts.
3/8 Blood,	
2/32s	58 cts.
2/28s, 24s	58 cts.
1/2 Blood,	
2/22s, 28s	62 cts.

—The Dill Spool Support Co., of Philadelphia, is meeting a large demand for its Wolstenholme Dyeing Machine, announced elsewhere in this issue.

—Insinger & Co., Philadelphia, are running full on looms for narrow fabrics, and are introducing valuable new features in loom manufacture.

—Radey, Cunningham & Co., Philadelphia, report satisfactory business in card clothing. Mr. Scott, at 222 Chestnut St., is the active representative of the firm.

KERR THREAD CO.
—SPINNERS OF—
Fine Combed Sea Island **COP SINGLES**
All Numbers, 30s to 150s.
Fall River, Mass.

JAMES WHITESIDE,
Importer and Commission Agent,
Spun and Tussah Silk, Cotton Worsted, Mohair, Linen and Jute **Yarns.**
96 Spring St., NEW YORK.

GEORGE M. FLEMING,
Commission Merchant and Manufacturers' Agent for sale of
Wool, Worsted, Merino and Cotton } **Yarns**
35 Strawberry St., Philadelphia, Pa.

E. P. WHITMAN. D. A. HAGAN
WHITMAN & HAGAN,
YARNS. 32 Westminster Street, PROVIDENCE, R. I.

ABEGG & RUSCH,
WORSTED YARNS
Dry Spun, Nos. 36s to 100s.
COTTON YARNS
Nos. 12s to 120s.
92 GRAND ST., NEW YORK.

WOOLEN YARNS.
All grades Woolen, Mixed and Merino yarns.
15 SETS CARDS.
EDWARD M. ROCKWELL,
LEOMINSTER, - MASS.

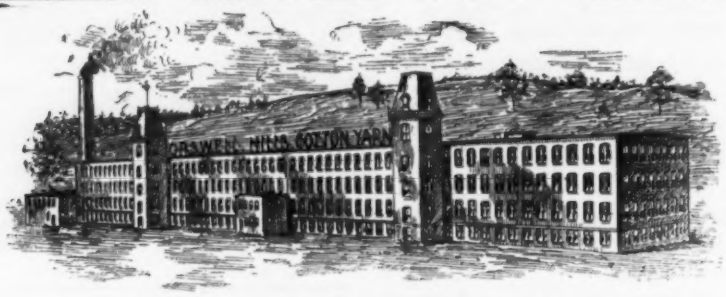
HENRY C. FOX.
Commission Merchant.
Dealer in odd and end lots of
COTTON, WOOLEN AND WORSTED YARNS,
No. 45 Strawberry St., Philadelphia.

WILSON H. BROWN & BRO.,
MANUFACTURERS OF
FANCY WOOLEN and MERINO Knitting **YARNS** & Weaving.
GERMANTOWN, PA.
Salesroom, - 240 Chestnut St., Philadelphia.

CAPACITY, 50,000 Spindles.

ORSWELL MILLS

FITCHBURG MASS.



COMBED OR CARDED

COTTON YARNS

In Chains and Skeins, on Balls, Beams, Spools—single or twisted.

GREENE & DANIELS MFG. CO.,

Combed and Carded

Yarns, Threads, Twines and Chain Warps,

Furnished in any manner desired by the trade.

PAWTUCKET, R. I.

THE WILLIAM CLARK COMPANY,

WESTERLY, R. I.

Mills equipped with the latest and most improved machinery.

Combed Egyptian from No. 20s to 100s. Combed Sea Island from No. 40s to 200s.

Also 2, 3, 4, 5 ply and 6, 9 and 12 ply cable laid.

Hosiery Yarns on Cops Tubes or in Skeins, Grey, Bleached or Dyed. (Fast Colors.

Cotton Yarns AND WARPS Of Every Description.

James F. White & Co.

COMMISSION MERCHANTS,

54 and 56 Worth St., NEW YORK.

228 Chestnut St., PHILADELPHIA.

BURLAPS all WIDTHS and WEIGHTS.

SEAMING THREAD FOR Hosiery Manufacturers.

Easthampton Spinning Co.,

SPINNERS OF FINE YARNS

from Egyptian and Peeler Cottons, double carded, or Combed, in Skeins, Chains, Cops and Cones, with full line of Hosiery Yarns. . . . . .

JOHN CUMNOCK, Treas. and Selling Agent, - EASTHAMPTON, MASS.

Twisting Yarns.

WHITTIER COTTON MILL, LOWELL, MASS.

Littlefield Manufacturing Co.

K. K. HOSIERY YARNS, COPS, CONES & SKEINS.

Threads for Spooling. Single and Double Yarns for Silk, Woolen or Cotton Goods.

PAWTUCKET, R. I.

The Philadelphia Yarn Market.

The Philadelphia yarn market has been a trifle interfered with by the ice in the rivers and the cold weather, but it has made little difference in prices, as most commission houses have ordered a great deal of yarn shipped by rail, to help customers. There has been considerable activity in 20s warps, 2/30s skein and polished yarn for the crinoline trade, but this has been taken hold of carefully, as it is not expected to last, stopping suddenly. There have been no permanent changes in prices, but 20s, 26s and 30/1 warps have been rather firmer on account of the exceedingly low prices at which they have been sold. Woolen and merino yarns are in better demand, but at very low prices. Customers are sampling rather freely and spinners are hoping to get some orders from the sample lots they are making up in woolen and merino goods. Worsted yarn is in good demand. Spinners seem to be sold up for some time for all they can make, but prices are still kept down to very low figures. We quote:

WARPS.

20/1	12½ cts.
22/1	13 cts.
26/1	13 to 13½ cts.
20/2	13 to 13½ cts.
12/2	12 cts.
30/2	17 to 17½ cts.
30/1 Southern	15 to 15½ cts.
30/1 Eastern	15½ to 16¼ cts.

SKEIN.

26s filling	13 cts.
20s filling	12 to 12½ cts.
19s soft	12½ cts.
4s to 10s soft	11 cts.
10s to 12s hard	10½ to 11 cts.
10s to 12s soft	11 to 11½ cts.
14s hard	11 to 11½ cts.
14s soft	11¼ cts.
14/2 hard	11½ to 11½ cts.
20/2	13 to 13¼ cts.

SOUTHERN CONES.

6s to 8s	12 cts.
10s	12½ to 13½ cts.
12s	13¼ cts.
16s	14 to 14½ cts.
20s	15½ to 16 cts.
24s	16 to 16½ cts.
26s	16 to 16½ cts.

HARDT, VON BERNUTH & CO.,

YARN IMPORTERS

Sole Agents for

JOHN WULFING & SONS, Worsted Yarns.

SIR TITUS SALT. BART. SONS & CO., Ltd., Mohair, Cashmere and Alpaca Yarns.

W. HOLLINS & CO., Ltd., Merino and Mixed Silk and Wool Yarns.

McCONNEL & CO., Ltd., Lace Curtain and Thread Yarns.

BENT, LEY SILK MILLS, Ltd, Spun Silk Yarns.

477 Broome Street, New York.

BALE, STUART & CO.

Spun Silk, Cotton and Worsted YARNS.

31 George St., MANCHESTER, ENG. 51 Greene St., NEW YORK

BUCKINGHAM & PAULSON,

COMMISSION MERCHANTS,

Yarn and Warps,

83 Leonard St., NEW YORK.
118 Chestnut St., PHILADELPHIA.
311 Jackson St., CHICAGO.

Wesendonck, Lorenz & Co.,

44-46 LEONARD ST., N. Y.

FOREIGN WOOLEN, MERINO, WORSTED, Yarns for Hosiery, Underwear, Dress Goods, Men's Wear.

JAS. W. GREAVES & CO.

Worsted and Woolen

Providence, R. I. YARNS.

TUCKER & COOK MFG. CO

MANUFACTURERS OF

WHITE AND COLORED COTTON WARPS

Nos. 6s to 30s,

On Beams, Jack Spools or in Chain

CONWAY, MASS.

GUERIN SPINNING CO.

JOS. GUERIN, Agent

Custom Spinning of Woolen and Merino Yarns of all descriptions (specially in fine numbers) spun according to the Belgian system.

92 South Main St., - Woonsocket, R. I.

Frank E. Patterson, Prest. Oscar W. Wood, Treas.

GERMANTOWN SPINNING COMPANY INCORPORATED GERMANTOWN JAN. 9TH. 1890

Germantown Spinning Co.

COTTON CARDED

HOSIERY YARNS

In numbers from 6s to 26s.

Germantown, Philadelphia.

GEO. FELL & SON,

LEATHER MANUFACTURERS,

Bolton, England.

SPECIALTY:

ROLLER SKINS

PERSIAN, FOR EGYPTIAN AND SEA ISLAND COTTON YARNS AND FINE COUNTS, WELSH, FOR AMERICAN COTTON YARNS AND COARSE COUNTS.

REGISTERED TRADE MARK

Cable and Telegraphic Address,

"PELICAN BOLTON"

AI Code Used.

GEORGE FELL & SON BOLTON LANCASHIRE

REGISTERED TRADE MARK

EGYPTIAN COTTON

HERMAN CAPELLE,

Rothschild Building, Cor. Leonard St. & W. Broadway

NEW YORK.

H. BINDERNAGEL Alexandria, Egypt.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. E. J. CARRIGAN, Sec.

Established 1860.—Incorporated 1893.

THE S. BLAISDELL JR., CO.,

Egyptian COTTON Peruvian

American Long Staple a Specialty. and all American Southern points.

Shipments direct to mill form Egypt, Peru

CHICOPEE, MASS.

ROBERT D. MASON, President. FREDERIC R. MASON, Treas. and Sec'y.

THE ROBERT D. MASON CO.,

Established 1805. Incorporated 1892.

BLEACHERS AND DYERS

of Spool Threads, Knitting Cotton, Cords, Braids, Tapes, Stockinet and Jersey Cloth, and all kinds of single and two-ply Yarns, Indigo Blues, Aniline Blacks, and Fast Black for Milling Purposes. Also Woolen and Worsted Yarns and Braids of every description.

WORKS AT SOUTH WOODLAWN, - - PAWTUCKET, R. I.

SOUTHERN COPS.

6s to 8s	11½ cts.
10s	12 cts.
12s	12 cts.
16s	13 cts.

MIXED COLORED CONES.

6s to 8s	14¼ cts.
10s to 12s	15 to 15½ cts.
16s	16 to 16½ cts.

SKEIN.

8/3 carpet	10½ cts.
8/3 slack	10½ cts.
9/4 slack	10¼ cts.
60-yd double reeled	5½ to 6 cts.
10s double reeled	11 to 11¼ cts.
16/3 slack	12½ cts.

EASTERN COPS

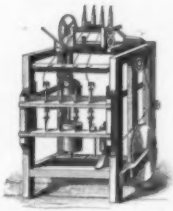
26s shuttle	13¼ to 14 cts.
40s shuttle	17 to 17½ cts.
12s shuttle	12½ cts.
16s shuttle	12¼ to 13 cts.
10s to 12s hosiery	13½ to 14 cts.
14s	14 cts.
16s	14½ cts.
20s	16 to 16½ cts.
24s	17 cts.

Cones, 1-2 ct. to 1 1-2 ct. above cops.
Skein, 1-2 ct. above cops.
Egyptian, 2c. to 2 1-2 c. above white.

—The McCalvey Elevator Works, Philadelphia, report a steady run of orders for improved steam, electric and steam power elevators. This is one of the oldest elevator concerns in the United States.

—Joseph T. Pierson, hosiery board manufacturer, of Philadelphia, has had a liberal run of orders for several months. In the specialty of hosiery boards and boxes, Mr. Pierson is doubtless the leader in the Middle and Southern States, and New England.

—Alexander Bros., Philadelphia, are well supplied with orders for leather belting. The large belt for the Nixon Paper Mills, of Manayunk, Pa., has been completed, being one of the largest in the country.



Arkwright's Original Spinning Frame, invented 1768.

ESTABLISHED 1769.

SIR RICHARD ARKWRIGHT & CO., Ltd.

Manufacturers of . . COTTON YARN.

Single Yarns Carded and Combed. 2 ply CASSED YARNS, suitable for the silk, lace and suspender trade. Also WARPS from 60s to 200s.

Main Office for U.S.: 69 MERCER ST., near Broome St., NEW YORK.

MALLISON ROPE WORKS, - ESTABLISHED 1827.

JOHN M. HODSON,

Single and Double Loop Bands for WORSTED and COTTON SPINNING.

ROPE, TWINES AND COTTON BANDINGS.

MANAYUNK, - PHILADELPHIA.

FLEMING & CHAPIN,

YARNS, THREADS, TAPES, BRAIDS,

215 Church St., Crochet Lace Edging for Ribbed Underwear. Philadelphia, Pa.

RICHARD A. BLYTHE,

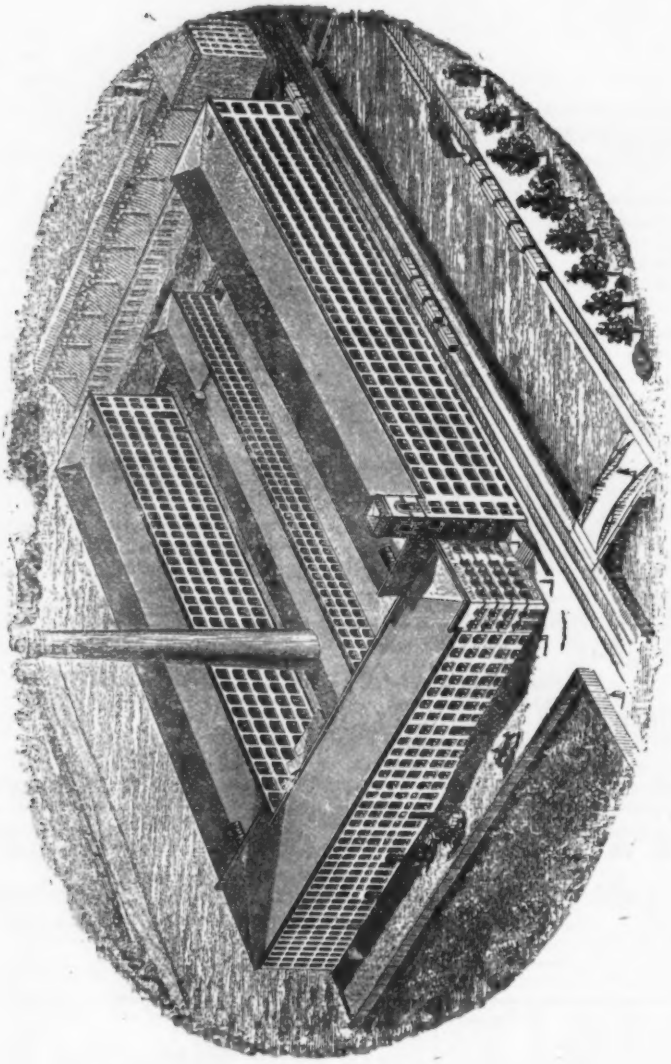
Fine Nos. a Specialty, 20's to 150's. Carpet Yarns and Warps, 4's to 20's.

Cotton Warps and Yarns,

114 Chestnut St., Philadelphia, Penn.

Washington Mills Company,

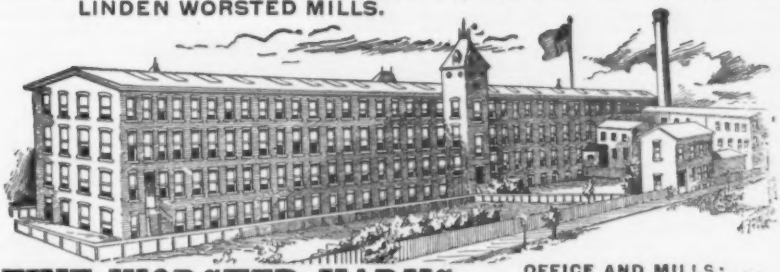
LAWRENCE, MASS.



Spinners of Worsted Yarns.

HOWLAND CROFT, SONS & CO.

LINDEN WORSTED MILLS.



FINE WORSTED YARNS

OFFICE AND MILLS:
Broadway and Jefferson Ave.
CAMDEN, NEW JERSEY

WEAVING and HOSIERY YARNS.

We Buy for Cash

WARPS, COPS, TWIST and SOFT SKEINS, Single, Double, 3-ply, 4-ply, etc.

COLORED YARNS for HOSIERY

on Cones, a Specialty.

Correspondence Solicited.

EDWARD S. HYDE, 223 and 225 Chestnut Street, PHILADELPHIA, PA.

Hook Bands for Worsted and Cotton Spinning.

The card of the Mallison Rope Works, Manayunk, Philadelphia, appears elsewhere in this issue. This long established concern is well known to worsted and cotton spinners of New England and the Middle States, and numbers among its customers many of the largest mills. Jabez Hodson, the father of the present proprietor, John M. Hodson, assumed the business in 1861, succeeding his grandfather, John Mallison, who established it in 1827.

The original site was one block away from the present location, and at these two points the works have been operated uninterruptedly for 68 years. John M. Hodson succeeded his father, and has reared two sons, who are actively engaged with him. About ten years ago they added to rope making, for transmission purposes, the manufacture of single and double loop bands for worsted and cotton spinning.

This has become a special and important feature, and is under the superintendency of Walter M. Hodson. Frank S. Hodson looks especially to the manufacture of sash cord, and other ropes. The most thorough system prevails throughout the works, John M. Hodson, who has followed the business all his life, giving oversight to every detail. Trolley car rope, transmission rope and sash cords of superior grades, are extensively produced; also jute sash cords, plain and in colors.

Worsted and cotton spinners will be interested in Mr. Hodson's announcement. He invites special attention to his extensive facilities for producing single and double loop bands for textile mills. In 1884 Mr. Hodson visited England, and bought the patent right of his loop band machinery for the United States. The inventor returned with him, and set up the machinery in the Mallison Works, said to be the most improved known to manufacturing. The Mallison Works contain one of the longest rope walks in the country. Extensive enlargements are contemplated this year.

—Wilson H. Brown, Germantown, Philadelphia, makes an announcement on another page which should be noted by those in need of textile machinery. The remaining machinery of the well known Leicester Woolen Mills, Germantown, Pennsylvania, is offered at attractive prices.

—PENNSYLVANIA, Philadelphia. The Philadelphia Tapestry Mills have been incorporated to manufacture textile fabrics. The incorporators are Messrs. Joseph, Isaac, Urias and Benjamin Wasserman and John Zimmerman.

—PENNSYLVANIA, Philadelphia. The Krout & Fite Mfg. Co. have put in eight new knitting machine, and will manufacture a new line of lace and edgings for underwear.

—PENNSYLVANIA, Philadelphia. Plans have been made for a large addition to the cordage factory of John T. Bailey. A new building, 60x100 feet, 4 stories high, will be erected, also an addition to the present works, measuring 50x100 feet. The buildings will be of brick and iron.

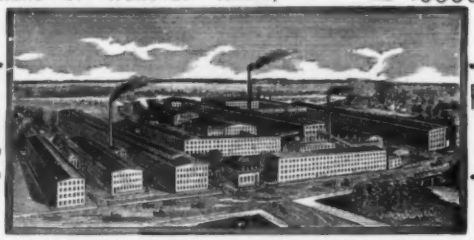
—PENNSYLVANIA, Philadelphia. George H. Lorrimer & Bro. are building a new two-story brick dye house, 40x120 feet, on Lawrence and Ontario Sts. George W. Stewart, 230 Diamond St., has the contract.

NATIONAL AND PROVIDENCE WORSTED MILLS,

CHAS. FLETCHER, President.

MANUFACTURERS OF WORSTED YARNS, SPUN ON THE

ENGLISH SYSTEM.



FRENCH SYSTEM.

Worsted Yarns in White, Mixed and Fancy Colors, on Bobbins, Dresser Spools and Skeins.

VALLEY STREET, PROVIDENCE, R I.

ALLEGHENY WORSTED MILLS,

Wolstenholme, Harrigan, & Clarke, MANFRS. OF

Worsted YARNS,

ALL NUMBERS SINGLE AND TWO-PLY, Sell Direct,

on Cop or in Skein, for Weaving and Knitting Purposes, in White, Natural & Fancy Mixes.

Office and Mills: Alleghney and Trenton Avenues, Phila., Pa.

CRANSTON WORSTED MILLS

CHARLES B. ROCKWELL, Treasurer, . . Manufacturers of

Fancy Yarns, Loops, Knots.
Spirals in Mohair and Worsted.

DYERS OF YARNS AND SLUBBING FOR THE TRADE.

BRISTOL, R. I.

CHAUTAUQUA WORSTED MILLS

Medium and Fine Grade Weaving and Knitting Yarns.

GOODWILL, ASHWORTH & CO., Jamestown, N. Y.

YARNS

SOLIS - - BOSTON.

179 Devonshire Street.

ANDREW J. SOLIS, Jr. & CO.

RIVER SPINNING COMPANY,

WOONSOCKET, R. I.

Belgian System WOOLEN and MERINO Yarns

In any shade or quality suitable for making any class of Goods, domestic or foreign at prices to insure competition with imported goods of any description.

Selling Agents: JOHNSTON & FARIE. Apply to Andrew Adie, 132 South 3rd St., Philadelphia

—A. B. Sanford has been chosen a director of the Pocasset Mfg. Co., of Fall River.

—Buckingham & Paulson, of New York and Philadelphia, speak to the trade in our yarn department. The extensive resources of this firm and their advanced position in cotton yarns, is well known in all sections.

—It is very evident to any one having opportunities to learn in advance the probable course of demand for styles, colors and fabrics, that dress goods stuffs composed more or less of mohair will be largely called for during the next few seasons. Consequently, it is probable that mohair yarns, which are never in the market in surplus quantities, will be very scarce.

In expectation of this demand, Messrs. Hardt, Von Bernuth & Co., of New York, have made preparations on a larger scale than ever before, in their mohair yarn department.

This house, as the manufacturers of woolens well know, is one of the most conservative, as well as strongest and oldest importing and commission houses in New York. In yarns they are altogether importers, and the mills that they represent are all institutions that were pioneers in different branches of spinning. They continue to be among the leaders in everything that marks progress and up to datedness.

The Sir Titus Salt, Bart., Sons & Co., Ltd., of England, whose plant and manufacturing village of Saltiar is famous the world over as a successful solution of the problem of housing and bettering the working life of operatives, are the manufacturers of the mohair yarns carried by Hardt, Von Bernuth & Co. This same mill is also putting on the market through this house, their cashmere yarns, which, if we mistake not, have never been sold at all in the American market, as the Salts are about the only spinners of fine long haired cashmere yarns The Salts' plush yarns will also be more vigorously marketed this year than ever.

W. Hollins & Co., Ltd., are a new account with Hardt, Von Bernuth & Co. Their mills, which have been in existence in England over 100 years, are largely relied upon to supply the fine class merino yarns used in the Chemnitz trade. They have been, practically speaking, altogether merino yarn men, but they also make mixed silk and wool yarns, which will be put before the American manufacturers this year.

John Wulfing & Sons, of Lennep, Germany, have a wide spread reputation for the excellence of their hosiery and weaving yarns in solid colors and mixtures, as well as white.

McConnel & Co., Ltd., are pioneer spinners of Lancashire, their mills having been in operation over 100 years. Their specialties are lace curtain yarns and fine thread yarns.

The Bent. Ley Silk Mills, Ltd., spun silk yarns, complete the list of foreign yarn mills represented on this side by Messrs. Hardt, Von Bernuth & Co., 477 Broome Street, New York.

BARRY, THAYER & CO.,
Cotton Commission Merchants,
32 INDIA ST., - BOSTON.
Special attention given to orders from woolen mills for high grades and Peruvians.

CHAS. J. WEBB & CO.,
Foreign and Domestic
WOOL, HAIR and NOILS,
142, 144 & 152 to 156 N. Front St.,
PHILADELPHIA PA.

FOWLES & CO.,
Importers and Dealers
WOOLS, NOILS, HAIR,
Shoddies, Waste, Flocks, Etc.
102 Church St., Philadelphia.

RAMIE - FIBRE.
MANUFACTURERS desiring to purchase RAW STOCK in large or small quantities, can be supplied.
RAMIE FIBRE CO.,
care R. H. Davis & Co.,
120 N. 7th St., Philadelphia, Pa.
Also Agents for the Celebrated Patent Metal Packing

Gorham Rogers & Co.,
— IMPORTERS OF —
BURLAPS
20 Federal Street, Boston.

C. MOORE & CO.,
MANUFACTURERS OF
TWINES, THREADS AND YARNS.
Jacquard Harness Twines of all kinds on hand and made to order.
12 SOUTH FIFTH STREET
Philadelphia.

FAST FANCY COLORS.
We make a specialty of dyeing Mode and Tan shade on hosiery and yarns, as also all other fancy shades. Colors absolutely fast. For particulars address
OAKDALE DYE WORKS,
913 W. York St., Philadelphia, Pa.

BURR'S COMBINATION INDEX.
A valuable and necessary book for every office, which saves time and labor. The Index is for Ledgers, Letters, Books, Commercial Reports, and records of all kinds.
BURR INDEX CO. 336 Asylum St., Hartford, Conn.
SEND FOR CIRCULARS.

Chenev Brothers,

SILK MANUFACTURERS.

ALL KINDS OF

Knitting Silks, Ribbons AND Piece Silks

USED FOR TRIMMING KNIT GOODS.

TRAMS, ORGANZINES and SPUN SILKS, in the Hank, or on Spools or Cones, for Manufacturers' Use. Silks for Special Purposes Made to Order.

MILLS: South Manchester and Hartford, Conn.

SALESROOMS: 477, 479, and 481 Broome Street, NEW YORK.
79 Chauncey Street, BOSTON.
186 Franklin Street, CHICAGO

GRISWOLD WORSTED CO., Ltd.

MANUFACTURERS

Spun Silk Yarns, Worsted Yarns,

FOR ALL PURPOSES.

Office 322 Chestnut Street, Philadelphia, Pa.

AUQUOIT SILK MANUF'G CO.

SILK YARNS

FOR THE HOSIERY, WEAVING AND KNITTING TRADE GENERALLY,

76 Chauncy Street, Boston, Mass.

WILLIAM RYLE & CO.,

DEALERS IN

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Foreign and domestic

SPUN SILK YARNS AND NOILS

Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., - NEW YORK.

ESTABLISHED 1845.

T. BROPHY,

Kensington Dye Works,

Dyer of all Kinds of Yarn,
Jasper Street above Clearfield, PHILADELPHIA.

PHILIP WAMSLEY & CO.,

Spun Silk Yarns.

TWISTS OF ALL KINDS.

89 Grand Street, cor. Greene, NEW YORK.

MALCOLM MILLS CO.,

MANUFACTURERS OF

Novelty Yarns, Silk Noil Yarns, in Fast Colors AND White.

Mills, Frankford, Pa. Office, 216 CHESTNUT ST., PHILA.

PROVIDENCE DYE WORKS.

~~~~Dyers and Finishers,~~~~

. DIAMOND FAST BLACK .

FOR

COTTON YARNS, Suited for HOSIERY and WEAVING Cotton, Woolen and Worsted DRESS GOODS, Woolen and Worsted Mixed CASSIMERES and CLOAKINGS, also Woolen and Worsted Slubbing, COTTON YARN and WARP DYERS and BLEACHERS.

SAMPLE SKEIN FREE ON APPLICATION.

FIRTH & FOSTER BROS.,

OFFICES: **125 Cestnut St., Phila.** WORKS: **Taylor, Emerald and Adams St.,**
New York Office, 351 Canal St. **Kensington, Philadelphia, Pa**

Home Bleach and Dye Works,

PETER B. McMANUS, Proprietor.

Dyers and Bleachers of Cotton Yarns,

PAWTUCKET, R. I.

R. GREENWOOD & BAULT,

GLOBE DYE AND BLEACH WORKS,

FRANKFORD, - PHILADELPHIA.

Specialists in Cotton Warps and Skein Dyeing.

Boston Finishing Works

WILLIAMSTOWN, MASS.

BLEACHERS, DYERS AND FINISHERS

Of Pure Finish Shirtings, Sheetings, Canton Flannels and Filled Goods. Also Silesias, Satteens, Corset Jeans, Cambrics, Sleeve Linings, Pocketings, Flanneletts, and all descriptions of Dyed Goods.

NAPPING A SPECIALTY.

Being equipped with the French and other Foreign and Domestic Napping Machines, we are prepared to give any kind of Nap required, including the French FlannelFinish.

THE WILMINGTON MILLS MFG. CO.

MANUFACTURERS OF **JUTE GOODS,**

CARPET FILLING AND RUG YARNS,

Wrapping, Baling, Tobacco, Hop and Wool Twines. Cords, Ropes, Packing and Specialties.

WILMINGTON, DEL.

Pawtucket Dyeing & Bleaching Co.,

BLEACHERS AND DYERS OF

COTTON & COTTON YARNS, STOCKINET & JERSEY CLOTH.

OFFICE WITH **BLODGETT & ORSWELL CO., Manufacturers of Glazed Yarns,**

E. G. BLODGETT, Prest. **PAWTUCKET, R. I.** E. W. ORSWELL, Treas
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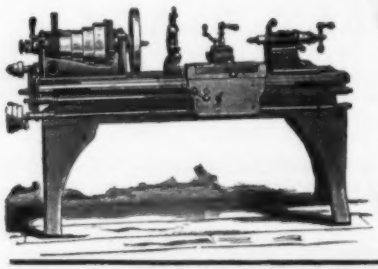
P. BLAISDELL & CO.,

Manufacturers of



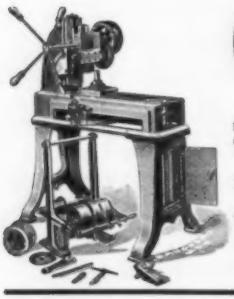
MACHINISTS' TOOLS,

Blaisdell's Patent Upright Drills,
with Quick Return Motion.

ENGINE LATHES, PLANERS,
Boring Mills, Gear Cutters, and Hand Lathes

WORCESTER, MASS.

MODERATE PRICED



Gear Cutting Machine.

Especially adapted for use in Repair Shops. Now in use in nearly **ONE HUNDRED** representative mills, including **Twelve** in Fall River, Mass. On application, we shall be glad to submit full particulars, prices, and photographs of latest improvements. Send for our Sheet of References.

THE D. E. WHITON MACHINE CO.,

19 Oak Street, New London, Conn.

THOMAS TOWNSEND,

Late of Hood & Townsend, Established 1885

Manufacturer of **MACHINE WOOL COMBS,**

Hackles, Gills, Fallers and Porcupines. Tentering Pin Plates. Also Cotton Combs neatly re needled. Dealer in the Best English and American Cast Steel Pins and Comber Needles

All Work Guaranteed. **MANCHESTER, CONN.**

RADEY, CUNNINGHAM & CO., MANUFACTURERS OF

Card Clothing of All Kinds.

INDEPENDENT of our **Competitors,** and **Dependent on our Customers.**

2137 DICKERSON STREET, KENSINGTON, PHILADELPHIA, PA.

Mr. Radey is a practical tanner, and Mr. Cunningham was a late member of James Smith & Co. before they sold out to the consolidation of the Card Clothing Co.

Cohoes Foundry and Machine Co.

BUILDERS OF

SLASHERS,

ELEVATORS,

WATER WHEEL GOVERNORS, SHELL ROLLS.

General Foundry and Machine Work, Repairing

COHOES, NEW YORK.

MILL NEWS.

Cotton.

New Mills.

—ALABAMA, Cedar Bluff. It is reported that a cotton mill is contemplated at this place, by an experienced mill man whose name is not given.

—ALABAMA, Fort Payne. A company has been organized at this place to erect a cotton mill. No names have been reported in connection with the enterprise.

—ALABAMA, Lafayette. Subscriptions are being raised for the erection of a cotton mill. Mr. Ed. McGehee is interested.

—*ALABAMA, Ozark. The Ozark Cotton Mill Co., recently organized, inform us that they will start the foundation of their new plant about the middle of March, having it completed by November. The size of the plant has not yet been determined, nor the kind of goods to be manufactured. They will not be ready to purchase machinery until from the first to the 15th of March.

—FLORIDA, Pensacola. A movement is on foot to erect a cotton mill at this place. A committee, consisting of S. C. Cobb, W. D. Chipley, F. C. Brent and others, has been appointed, and it is proposed to raise $100,000.

—*GEORGIA, Americus. Over $10,000 has been subscribed for the new cotton mill previously reported at Americus.

—*GEORGIA, Dawson. We understand that $50,000 has been raised for the new cotton mill previously reported at this place.

—GEORGIA, Elberton. Col. T. M. Swift is interested in a project to establish a cotton factory in Elberton. A $300,000 plant is proposed.

—*GEORGIA, Lagrange. The Pittsburg & Georgia Land Co. has been organized, for the purpose of developing the lands in this immediate locality, with the intention of taking up the cotton mill industry in the near future. J. W. Drape, 313 Wood St., Pittsburg, Pa., is first vice president, and Capt. J. McClure, of Lagrange, is secretary. Capital stock is $100,000, with privilege of increasing to $500,000. Location is believed to be peculiarly advantageous for the cotton industry, and the company offer liberal inducements.

—GEORGIA, Quitman. A proposition has been made by Northern parties, that if the citizens of Quitman will raise $30,000, they will build a $150,000 cotton mill in the town.

—GEORGIA, Rome. It is reported that the Massachusetts Cotton Mills, of Lowell, will build a new mill at this place, at a cost of $600,000, and that they will put in 50,000 spindles.

—MISSISSIPPI, Greenwood. The business men of Greenwood, are endeavoring to raise $20,000 toward securing a cotton factory. It is understood that Northern capitalists agree to put in $80,000, if $20,000 is raised in the town.

—MISSISSIPI, Kosciusko. A company has been organized, with capital of $100,000, to build a cotton mill. W. B. Potts has been elected president, C. C. Kelly, treasurer, and F. P. Johnson, secretary.

—NORTH CAROLINA, Charlotte. The Highland Park Mfg. Co. will erect a new mill for the purpose of spinning their own yarn, which they have heretofore purchased.

—*NORTH CAROLINA, Franklinton. The new mill reported at this place will be called the Franklinton Cotton Mills. They will put in about 2500 spindles for the manufacture of hosiery yarns, and later on will put in knitting machines. Will not be ready to place orders for machinery for about a month.

—NORTH CAROLINA, Lattimore. It is reported that Messrs. De Priest Bros. will organize a company to build a cotton mill. A 6000-spindle plant is contemplated.

—NORTH CAROLINA, Rockingham. Robert L. Steele, Jr. is interested in a project for the erection of a new cotton factory at this place. A capital of $100,000 or $150,000 is proposed.

—NORTH CAROLINA, Rockingham. The South Union Mills, operated by the Ledbetter Mfg. Co., which were destroyed by fire last August, have been rebuilt, and machinery will soon be placed. They expect to have the plant in operation by the first of May.

—NORTH CAROLINA, Salem. Messrs. S. & H. Fries, cotton manufacturers at this place, are reported to be interested in the establishment of another cotton mill.

—NORTH CAROLINA, Siler City. Mr. J. C Gregson, of Staley, N. C., is interested in the erection of a cotton mill at Siler City. It is understood that a company has been organized, and that work on the buildings will be started at once.

—SOUTH CAROLINA, Denmark. A stock company is being organized at Denmark for the erection of a $50,000 cotton mill.

—*SOUTH CAROLINA, Greenville. The Economy Cotton Mill, recently reported as incorporated, will begin work on their new buildings at once. They expect to erect a $100,000 mill.

—*SOUTH CAROLINA, Greenville. The new cotton mill, which we have previously reported H. W. Cely, J. H. Heyward and others were interested in, has been incorporated under the name of the Economy Cotton Mills. They have a capital stock of $50,000, with privilege of increasing to $150,000.

—SOUTH CAROLINA, Greer Depot. Subscriptions to the amount of over $40,000, have been raised to build a cotton mill. No names are reported in connection with the movement.

—*SOUTH CAROLINA, Laurens. Mr W. E. Lucas, of Spartanburg, S. C., has been elected president of the new company organized at this place to build a cotton mill. The mill will contain 12,500 spindles and 300 looms. Mr. Lucas will have entire charge of the construction of the buildings.

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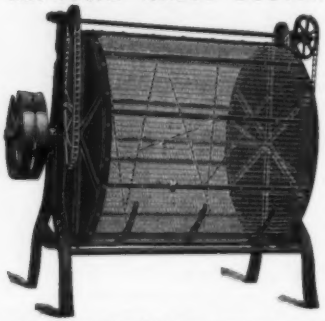

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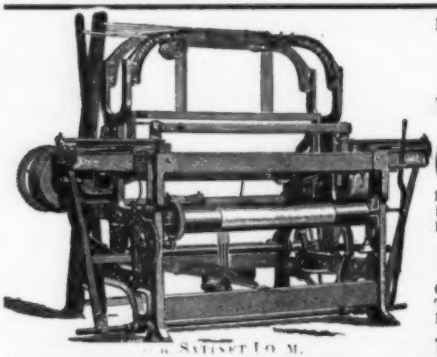

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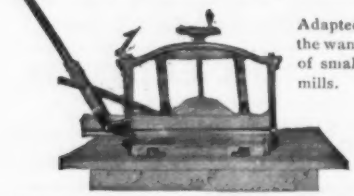

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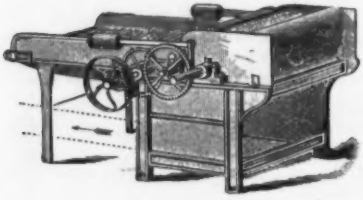

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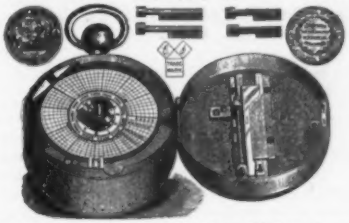

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List of Textile Patents Issued February, 1895.

Specifications and drawings furnished for fifteen cents each. In ordering specifications give both name and number. Address "Patents," P. O. Box 222, Brooklyn, N. Y.

Apparatus for Facilitating Doffing bobbins in spinning. 534,139. P. Clough, Keighley, England.

Apparatus for Stretching and Drying tubular fabrics. 534,641. H. A. Tullar, Waterville, Ct.

Artificial White Indigo. 534,560 K. Humann, Zurich Switzerland.

Black Azo Dye. 533,463. M. Hoffmann, Mainkur, Germany.

Blue Dye, 533,508. M. Ulrich and J. Bammann, Elberfeld, Germany.

Blue Dye. 534,809. J. Bierer, Basle, Switzerland.

Blue Disazo Dye. 534,573. R. Paganini, Basle, Switzerland.

Carding Machine, 534,402. F. J. Mauborgue, New York, N. Y.

Carding Machine Feeding Mechanism. 534,418. E. V. Bates, Dracut, assignor of one-half to T. McNamara, Lowell, Mass.

Carpet Woven Paper. 533,690. M. J. Whittall, Worcester, Mass.

Cloth Notching Machine. 534,941. H. B. Allyn, Poughkeepsie, N. Y.

Cloth Stretching Machine. 534,649. D. R. Kinyon, Raritan, N. J.

Dyeing Machine. 534,797. T. R. Houseman, Philadelphia, Pa.

Extracting Fat from Wool. 534,602. E. Fahrig, Baltimore, Md.

Fabric Piling Machine. 534,346. J. B. O'Bryan, Nashville, Tenn.

Fibre Disintegrating Machine. 533,954. J. M. Holmes, Glen Falls, N. Y

Flexible Spinning Spindle. 534,287. G. Singleton, Dover, N. J.

Knitting Machine. 534,969. H. Pulster, Philadelphia, Pa.

Knitting Machine Stopping Device. 534,334. C. W. Kutz, Fleetwood, Pa.

Loom Loose Reed Motion. { 534,615. 534,614.
W. McMichal, Woonsocket, R. I., assignor to Woonsocket Press & Machine Co.

Loom Pick Measuring Device. 533,710. J. Lancaster, Dover, N. H.

Loom Reed. 533,935. A. Weithaase, Philadelphia, Pa.

Loom Shut'le Tension Device. 533,709. S. M. Hamblin, New Bedford, Mass.

Loom Stop Motion. 534,625. E. J. Ashley, Newark, N. J.

Loom Temple. 534,531. T. Sykes, Philadelphia, Pa.

Machine for Inserting Threads into woven fabrics. {534,343. 534,344. E. Morris, Michigan City, Ind.

Manufacturing Reeds for Weaving. 534,229. J. Reixach and H. Erwmott, Bradford, England.

Presser Cone Point for Bobbins. 534,724. G. W. Snyder, Herkimer, N. Y.

Quill or Bobbin for Silk or other Textile weaving. 534,768. F. Stone, Worcester, Mass.

Red Basic Dye. 533,829. C. Schraube, Ludwigshafen, Germany.

Roller Cotton Gin. 534,140. J. E. Coleman, Jr., Wade, Georgia.

Saw Cotton Gin. 533,866 J. W. Cooper, Mayesville, S. C.

Skeining Yarns. 534,456. R. Smith, New London, Ct.

Spinning Machine Clearer. 534,616. W. C. Peirce, Providence, R. I., assignor to Providence Machine Co., same place.

Spinning Spindle Mounting. 534,477. H. D. Klots, N. Y.

Spinning and Twisting Machine Separator. 533,730. W. H. McDavitt, Lawrence, Mass., assignor to Geo. Draper & Sons, Hopedale, Mass.

Stocking and Manufacturing Same. 534,248. J. Bennor, Macon, Ga.

Stop Motion. 533,535. H. E. Hawes, Brooklyn, N. Y.

Stop Motion for Slubbing, Intermediate and roving frames. 534,431. W. H. Erskine, Pawtucket, R. I.

Top Flat Card Grinding. 534,721. H. McDermott, Nashua, N. H.

Yarn Roll and Making Same. 533,688. S. W. Wardwell, Jr., Boston, Mass.

Yarn Tube. 534,960. F. C. Kennedy, Burlington, Vt., and H. A. Wilbur, West Somerville, Mass.

—W. H. Summersly, formerly with the Henderson Cotton Mills, Henderson, Ky., is now with the Pontiac Mill, Pontiac, R. I.

—J. G. Leinbach & Co., woolen manufacturers, of Reading, Pa., have entered into a profit sharing arrangement with about a dozen of their employees, who have been with them more than a dozen years.

—A change will be noticed in the card of Andrew Watson, the Philadelphia machinist and engineer. Mr. Watson speaks in this issue of steam engines, boilers and other power appliances. He will furnish fuller details of his machinery by mail, or call at his works, 2136 Dickerson St.

—George Schofield, Philadelphia, states that he is in position to interest buyers of new and second hand textile machinery. His store-room always contains a full variety, and he is usually in possession of inside information.

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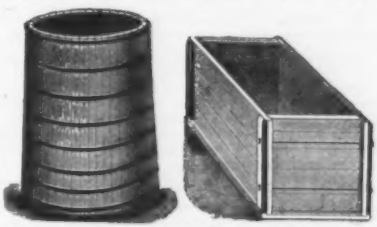

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6 Setts 60-inch Cards, Bramwell & Apperly Feeds.
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CARDING AND SPINNING CALCULATIONS.

A CHART COVERING ALL CLASSES OF WORK.

Tells the size to make the roping on the cards, and the number of inches of roping to be delivered by the rollers per stretch of draw on the jack or mule. Table No. 2 is for extra fine work. Table No. 3 is an 18 yard yarn or roping table, giving the number of yards to the pound, the next giving the run, and another the grains to 18 yards of yarn or roping. The chart also contains diagrams illustrating a new method for drafting in woolen spinning. Sent on receipt of $1.00 by F. R. COOPER, Montmorency Falls, Quebec.

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Questions answered concerning cloth constructions, also Speed of Machines required for Carding, Spinning, Weaving and Finishing **Woolen Goods.** Dissecting of Patterns. Estimations on Stock, Machinery, etc. Write for reduced terms to

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I HAVE AN ORDER FOR

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The Cotton Market.

While the prudent bear will be content with scalping profits on deals in cotton futures around present quotations, keen observers fail to find any substantial encouragement in the situation. The South is preparing to adjust itself to the new conditions much more readily than might have been expected. "After all," says a prominent Southern paper in discussing the prospect editorially, "cotton may not be too cheap at 4 1-2 or 5 cents a pound, with the planter able to see his way out of the difficulty by proper economic methods." It is admitted that in Louisiana and Texas, planters may be able to make a small profit even at the low prices of the current season, and cases are by no means isolated, in which planters who have lost money on their cotton crop for years, made small amounts in 1894.

The Senate committee was foolish to attempt the hopeless task of proving that there has been no "real overproduction," after stating that "overproduction is the obvious, apparent and proximate cause of the low prices." The demand, increased as it has been, has not kept pace with the increased supply. While many mills are liberal buyers at present low values, some establishments are piling up the staple in their store houses, and even in their yards. This will eventually cause a slackness in orders that cannot fail to be seriously felt.

Comparatively few insiders expect to see any material reduction in acreage, notwithstanding the reports of shrinkage in the sales of fertilizers, the reduced figures of the agricultural department, and the professions of the planters themselves. Faith in the correctness of the government reports has been shaken by the underestimate of about 1,300,000 bales made last year. This year the Washington figures put the Texas shipments at 2,800,000 bales for the season, whereas 2,736,000 bales, or thereabouts, had been shipped, with 30 days remaining to be heard from. The surplus, visible and invisible, which has accumulated within four years, constitutes

COTTON MILL WANTED.

The Chamber of Commerce, of CHATTANOOGA, TENN., wish to correspond with parties having capital and experience, with a view to locating one or more modern Cotton Mills at or near Chattanooga.

The conditions are favorable. 9 railroads, and line of steamers to St. Louis on Tennessee River; cheap, reliable and plentiful labor; coal 75 cents to $1 40 per ton; good water works; mild and equable climate, (average, 60 degrees;) building material cheapest in United States; low taxes; favorable public sentiment; right on the edge of the cotton fields; healthy climate.

Address,

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At this time, when so many of New England's best mills are favorably considering the unquestioned advantages of the South for cotton manufacturing, it seems wise to give a few words of timely warning.

Don't Go South unless you wish to increase dividends.

Don't Go South unless you wish to save 75 per cent. in cost of motive power, lighting and heating.

Don't Go South unless you wish to be free from labor troubles, restrictive legislation and exhorbitant taxation.

The Chattanooga Company,

LIMITED,

Owns 20,000 acres of valuable COAL, TIMBER and MINERAL LANDS, available for the location of Cotton Mills and other industries, fronting ten miles on the Tennessee River, opposite the city of Chattanooga.

This Company is prepared to offer splendid inducements to meritorious industries of all kinds located upon their property. Address, T. J. NICHOLL, Gen'l Manager, Room 62 Times Building, Chattanooga, Tenn.

Chattanooga, Tennessee,

Presents more advantages for industrial enterprise than almost any other city on the Continent.

The climate is particularly adapted for cotton manufactures.

The lands owned by The Chattanooga Company, Limited, are from one to six miles from the centre of this city, high, rolling, healthy, and particularly suitable for the homes of operatives. Quick electric communication across great steel bridge, with the city. Further information cheerfully given.

the knotty problem. It is to be increased—and upon the amount of that increase, prices largely depend. The increase will apparently be entirely determined by the American crop, as the total increases and decreases in foreign yields, about counter-balance each other.

The movement of the crop continues to be surprisingly large, and little is to be noted of an encouraging nature. The cold snap of early February has caused backwardness of Southern trade in manufactured cottons. Prices are now 2 1-4 cents cheaper than at this time last year, 3 1-2 cheaper than in 1893, and 1 1 2 less than in 1892, for May contracts.

The world's total visible supply, March 1, was 4,850,000 bales—about 360,000 bales more than a year ago, 580,000 more than in 1893, and 150.000 more than in 1892. Nearly 1,900,000 more bales have been marketed than in 1894, 2,720,000 than in 1893, and 660,000 more than in 1892. Exports amount to 1,100,000 more bales than last year 1,950,000 more than 1893, and 800,000 more than in 1892. The stock in United States ports is 30 000 bales more than last year, 34,000 bales more than in 1893, and 210,977 bales less than in 1892.

It should not be forgotten that consumption and exports are the largest ever known, and that holders of the visible supply are not likely to be forced to realize.

Late cable from Alexandria reports the Egyptian market as strong on small stocks, and covering of short interests.

Peruvian cotton on the last Liverpool cable, was slightly higher, owing to the revolution causing a scarcity of labor, and demand stimulated by low prices.

—The O. K. Soap Co., of Philadelphia, is doing its usual share of business with the textile and dyeing trade.

—Stanton & Lewis, Philadelphia, are busy making cylinders and dials for the knitting trade. They think of increasing their present facilities.

The Wool Market.

Increased receipts of foreign wool are sufficient to counter-balance the recent free demand, consequently March opens with the market manifesting a tendency toward weariness. The let-up in orders is natural at just this time of year, particularly so this season, for there has been a steady general buying since January 1, although large exchanges have been the exception. Australian wool is the principal disturbing factor. Foreign wools, as a rule, are so favored that nothing short of a decided concession attracts attention to corresponding domestic grades. There is plenty of sampling but few sizable deals are being closed.

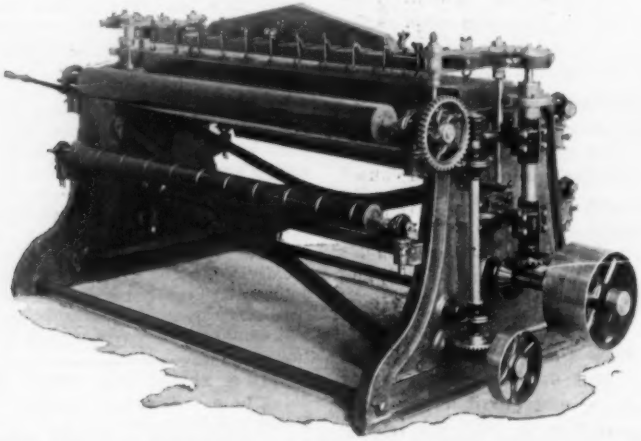
While there is nothing very deplorable to be noted in the situation, it does not take a pessimist to observe that in spite of the small supply carried over, increasing activity of the mills, light stocks of manufactured goods, yarn advancing abroad and firm foreign markets, the American fleece is bumping around on low water mark, without the certainty that bottom has been reached.

If one would extract a gleam of sunlight from the prospect he might observe that the market is fairly steady. This, doubtless, because the downward foreign movement has been checked by more hopeful reports from manufacturing districts, although the next series of English sales will see some increase in the number of bales. There is reason to believe that the large arrivals of Australian wools at the port of Boston the last week in February, is in part due to the freezing of the Thames river, which delayed and bunched the shipment of purchases at the recent London sale. It is only fair to expect that with the approach of the new clip something of the usual gain in strength will be shown.

Women show preference for dress goods of foreign manufacture, which forms the most discouraging feature of the situation. The result is that some mills are reaching the end of their spring orders three or four weeks earlier than was expected. Possibly fall busi-

This Illustration is a Patent Chinchilla Machine

for producing all kinds of Patterns of Chinchilla goods. The machine is very heavily built, and braced very strongly so that it can be run on any good floor without any extra foundation whatever. It has sixteen different motions without any extra parts, which is more than is required for any class of Chinchilla goods.



These machines are now running in the best woolen mills in this country, and are giving entire satisfaction wherever they are in use. The manufacturers and patentees are

C. H. BAUSH & SONS, Holyoke, Mass.,

who will be glad to give any further particulars.

ness may bring compensation as autumn contracts are reported as showing some increase.

Total receipts at Boston since January 1, have been 42,840 bales domestic and 36,182 bales foreign, against 49,110 bales domestic and 6,056 bales foreign for the corresponding period of 1894, a decrease of 6,270 bales domestic and an increase of 30,125 bales foreign. The sales at this point during the same period amount to 25,884,350 pounds against 20,131,600 pounds in 1894.

Little change is to be noted in carpet wools, although a more buoyant feeling prevails than for many months. Spinners and weavers generally are on full time and the movement of product is brisk, measured by the past year.

Late February advices from Sydney state that prices are not materially changed, quantities offered being small.

London correspondents report a more confident tone in raw materials, although the utmost caution in transactions continues. Since the close of the public auctions there have been numerous continental offers at considerable advances, especially from France. Prices are firmer and demand more active in Buenos Ayres and Montevideo.

George Woolford.

The extensive cedar tank, vat and dye tub business of George Woolford, Philadelphia, is announced in our dyeing department. Mr. Wolford is one of the largest manufacturers in his line, in the trade, and has a clientage with factories, brewers, dye works and chemical works in all sections of the country. His imposing factory at Ninth and Dauphin Sts., Philadelphia, is equipped with modern appliances for such work, and his own wide experience in building vats, tubs and tanks, gives assurance of a high standard of production.

Wool and Sheep Facts.

We are in receipt of Frank P. Bennett's "American Shepherds' Year Book," a pamphlet of 150 pages, containing information of great value to the woolen industry. With the comprehensive statistics especially prepared for this work, embodied in it, facts relating to the sheep industry, reports from different parts of the country on the prospects and conditions, membership lists of the different Breeders' Associations, together with the wool and woolen schedule of the tariff act of 1894, it should be of interest to every wool grower and manufacturer. Price $1.00. Received from Frank P. Bennett, 185 Franklin St., Boston, Mass.

FACTORY SITES FOR SALE OR LEASE.

TOPEKA, KANSAS.

Cheap water power transmitted by electricity to all departments of the factory, saving in shafting and friction of operating any other than the machinery actually in use. Every essential. Population 50,000 abundant help. Address, **J. B. BAR; THOLOMEW, Topeka, Kansas.**

CORRESPONDENCE SOLICITED.

Parties having Cotton Machinery of capacity, say from 2 to 10,000 spindles, with requisite looms and desiring to move south into a section suitably located for cotton manufacturing enterprises, will do well to correspond with the undersigned who have a small but well equipped cotton mill, which they wish to enlarge. This mill is beautifully located on 50 acres of land adjoining the town. Correspondence solicited. Address, C. L. STADTLER, President Excelsior Manufacturing Company, CUERO, De Witt Co., TEXAS.

MILL FOR SALE AT A BARGAIN.

A Three Set Knitting Mill, in the centre of the knit goods trade of New York; best of shipping facilities, skilled help, 48 inch cards and all corresponding machinery in good condition. Can be bought on easy terms; good reason for selling; ample room to enlarge. Will be sold with or without machinery. Correspondence held in strict confidence if desired. Address, HENRY HUDSON, 523 Union St, Hudson, N. Y.

WANTED!

A Superintendent FOR AN **Underwear Mill.** One who thoroughly understands the business. Apply with reference to W, care TEXTILE WORLD.

FOR SALE!

THE PLANT OF THE

Van Winkle Gin & Machinery Co.

ATLANTA, GEORGIA.

Buildings of all brick and substantially built. This is the largest and best equipped foundry and machine works in the Southern States and has an established business of many years. Annual sales from $200,000 to $350,000.

The plant when built was planned for a cotton factory, to accommodate about twenty thousand spindles, with looms for same, and is considered by experts well adapted for that purpose.

Our reason for selling: We are settling up and making a division of our present business.

Full description of the property and terms of sale will be sent on application. Address,

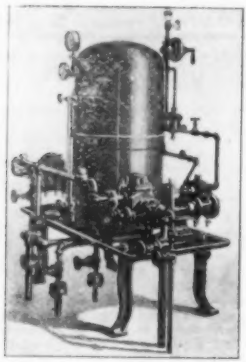
Van Winkle & Boyd,

PROPRIETORS,

Box 482, - Atlanta, Ga.

Fuel Oil Furnaces.

Improved **DUPLEX SYSTEM**
for SINGEING FURNACES.



Also for Annealing, Forging, Enameling, Welding, Melting, Brazing, Drop Forging, etc., with

FUEL OIL.

Furnaces Designed and Built for Every Purpose.

W. S. ROCKWELL & CO.,
Constructing Engineers,
26 CORTLAND ST., NEW YORK.

KNITTING MILL
For Sale Cheap.

Four Set Mill arranged for running carding and spinning, day and night, with knitting and finishing machinery in proportion.

Has an average production of 160 dozen, per day. Abundant water power, good freight facilities, and well organized help. Now running on orders. 21 good tenements. Sufficient reasons given for wishing to sell. Address, T. F., P. O. Box 1727, New York.

Wanted. First-class man capable to take charge of finishing machines, and superintend finishing room of our new rib knitting plant. Permanent position guaranteed, good salary. Only thoroughly competent men, with experience need apply. FULD & HATCH, Hudson Ave., Albany, N. Y.

Silk Waste Machine Wipers.

Many factory fires, supposedly of incendiary origin, are due to spontaneous combustion, but it is usually difficult to establish the fact, as few are willing to answer for carelessness or ignorance. Unfortunately, such fires often destroy the evidence needed to fasten the fault where it belongs. Oxydation, which causes combustion, may be either the rusting of iron, the drying of oils, or the fermentation of vegetable matter. Cotton waste, when saturated with oil, is the source of many mysterious fires.

The American Silk Manufacturing Company, of Philadelphia, in recognition of these dangers, has largely overcome them by introducing its original raw silk machine wipers, which they manufacture in various sizes to suit requirements. This wiper, we are assured, is not subject to spontaneous combustion, and is recommended by the Boards of Fire Underwriters in St. Louis and Philadelphia. Their cheapness surprises consumers. To overcome the difficulty of washing them, the company furnishes a special compound free, in which the soiled wipers are soaked over night, and are rinsed next morning. Another point is the thoroughness with which they clean machinery.

They leave no small fibre to work into finer parts of the machinery, eventually necessitating repairs. At the same time they retain in their meshes, any rust or particles of foreign matter with which they come in contact. The American Silk Co. make only a reliable grade of wipers, not to be confused with inferior imitations.

—J. Howard Nichols, treasurer of the Dwight Mfg. Co., has placed his order for revolving flat cards for their new mill to be located in the South, with the Pettee Machine Works, Newton Upper Falls, Mass.

—W. H. Burkhardt, 240 Chestnut St., Philadelphia, is a well known handler of tanks and vats for textile mills, dyers and brewers. He represents an extensive tank factory in the West, and is in position to interest the trade on tanks, tubs and vats. He also controls the sale of the Harris patent device for protecting the bolts of square vats and tubs from corrosion. A card of the last mentioned device will be found in the dyeing department.

—PENNSYLVANIA, Wilkesbarre. W. E. Dodson, 19 West Market St., has had his new dyeing plant in operation about three weeks. The old plant was destroyed by fire. He is in the market for a 36 inch hydro-extractor, and a cylinder 8 feet by 4.

—*GEORGIA, West Point. In regard to the dyeing and bleaching establishment reported at this place, we are informed that it is being built by the West Point Mfg. Co. and the Lanett Cotton Mills, for the purpose of dyeing and bleaching their product and also doing outside work.

—We have received from Scott & Williams, 2077 E. Cumberland St., Philadelphia, a revised edition of their catalogue of knitting machinery. It contains the additions necessitated by the extension of their line since the publication of their World's Columbian souvenir catalogue. Illustration and full description is given of their automatic seamless hosiery machine. Every knitting manufacturer will find this catalogue very convenient for reference. It is profusely illustrated, and contains numbered diagrams of the different parts of their machines, to facilitate ordering duplicates.

SITUATIONS WANTED.

The advertisers in the following columns should be addressed in care of Textile Mfg. World, or inquiries concerning them may be addressed directly to "Information Department, Textile Mfg. World," as full particulars of each advertiser are on file, and the addresses of suitable agents, superintendents and foremen for every branch of the textile industry will be furnished to manufacturers.

WOOLEN SUPERINTENDENTS.

Is a Good Superintendent for a mill on fancy mixes, satinets, unions. Not a designer, but a finisher and a first class manager of a mill on such goods. Address P, 131, TEXTILE WORLD.

1055 **Woolen Superintendent or Assistant.** Superintendent and designer. Will take a position as designer in a good mill. Age 36, married. Has worked on all kinds of woolen goods, such as beavers, kerseys, cheviots, chinchillas, flockoneys, cassimeres, medium grade worsteds, serges and all kinds of nap goods. Salary governed by position.

1029 **Superintendent or Designer.** Here is a good man for a responsible position. Has worked on all kinds of men's wear, woolens and dress goods. Is 35 years old and married, and has had an experience of 10 years as superintendent and designer. Will work for salary according to size of the mill.

856 **Superintendent and Manager.** Experienced on blankets, flannels dress goods, wool and worsted. Has had thirty years' experience. Can give best of references. Unmarried. Salary and part interest can be arranged with proper parties. Has a knowledge of trade, having sold goods direct for the mill.

COTTON SUPERINTENDENTS.

1016 **Very desireable man,** wishes a superintendency. Strong point weaving, spooling, warping and dressing, but has also done good work in designing. Shirtings, sheetings, ginghams, ducks, demins, etc., etc. Is 35 and married.

911 **Colored cotton, worsteds, and** cassimeres, 11 years superintendent in 3 different mills. 44 years of age, married.

822 **Cotton flannels, all grades.** Desires position as superintendent, or assistant superintendent. Age 33; married.

996 **Cotton Mill Superintendent,** has had sixteen years' experience on all classes of yarns, print cloth and sheetings. Has held responsible positions, and gives first-class references as to ability and character. Age 45. single.

1056 **Cotton Superintendent.** Experienced on fine and coarse yarns, rope, twine, mops, etc. Age 29, unmarried. Good references. Salary $30 per week.

DESIGNERS.

1014 **Designer, asst. supt., or supt.,** in medium or large mill. Has worked on cassimeres, unions, overcoatings, worsteds, solid, and cotton warp, and cotton filled worsteds. Excellent references.

755 **Young and Ambitious,** has worked on fancy cassimeres and cheviots, but principally worsteds. Would take a position as designer.

690 **Designer.** Fancy worsteds, cassimeres. Would also like the position of assistant superintendent. Refers to any firm ever worked for. Salary to suit the times.

WOOLEN WEAVERS.

920 **Worked in some of the best** N. E. mills. Dress goods, unions, cassimeres, worsteds and cheviots. 28, and married. $3.00 or so.

702 **Reliable overseer** of weaving. Son is loom fixer. Worsteds, shawls, flannels, all kinds of woolen goods, ginghams. Good references. Age 50, married.

1020 **Woolen weaver, first class man.** Experienced on cassimeres, dress goods, shawls, flannels, etc. Good references.

1004 **Now in the West,** good weaver. Experienced also in the best Eastern mills. Has worked on cassimeres, melions, cheviots, beavers, cloakings, worsteds. Is 38 and married.

1052 **A1 Cotton Weaver.** Has worked for 12 years as overseer of weaving in one of the largest cotton mills in New England. Age 39, married. The best of references. Will work for $3 per day to start.

614 **Boss weaver and designer** has had a wide experience on cassimeres, dress goods, worsteds, casket cloths, beavers, flannels, blankets, doeskins, satinets and jeans. 45 and married. Salary $3 or so.

741 **Woolen and Worsted Weaver** on fancy worsted, cassimere and dress goods. Good references.

930 **Asst. Supt, overseer of weaving** and designing. Has worked on all kinds of men's wear, dress goods, kerseys beavers, etc. Age 43; married.

COTTON SPINNERS.

1036 **Learnt his trade as spinner in** one of the best mills in Mass. Has worked fine and coarse, colored and white goods; 14 years experience. Is 38 years of age, married. Good references. Will work for $3.50 per day at the lowest.

964 **Cotton spinner,** hosiery, yarns, as well as all others. Overseer eight years; preaviously second hand twelve years. Used to rapid changing over on either mules or frames. Would go on road.

1058 **A Cotton Spinner of the First** Rank. Understands thoroughly twisting, drafting, and spinning the different classes of cotton. A good mechanic and an expert on copping. Has worked on flannels, prints, fine cotton underwear and sale yarns. Age 40, married. Salary $3 to $4 per day. Will go anywhere in the United States.

805 **Spinning, spooling, slashing,** etc. Is young and capable, comes from a race of first class cotton men. Would also take a position as superintendent of yarn mill; salary moderate.

DYERS.

1026 **Overseer of Dyeing.** A first class dyer, 40 years of age, and married. Has worked on woolen and worsted piece goods, slubbing, worsted and mohair yarns. Will work for $4 per day and upwards. Can give best of references, and can take position at once.

1057 **A Good Dyer.** Is experienced on cotton and woolen hosiery, eider downs, cashmerettes, dress goods, linings, piece warps, skein, fancy and raw stock. Age 25 years, married. Salary between $3 and $4 per day.

904 **Worsteds, Meltons,** mixtures, and cassimeres. Is a good stayer. Married; with a family; age 44. Wages $2.50 or $3.00.

1013 **Dyer on wool yarn and piece.** Is 43 and married. Has had 25 years experience in some of the principal woolen mills in Germany.

806 **Has colored hosiery,** woolen yarn, piece goods, slubbing, raw stock and run indigo vats with success. Salary moderate.

1042 **Dyer.** Has worked on all kinds of goods. Has had good experience in many New England mills. Age 45 years. Salary $3 to $5 per day. Excellent references. Will go anywhere.

987 **Dyer,** foreman or second hand would like position in a knitting factory or flannel mill. 25 years' experience in English and American mills. Age 43. $2 per day for steady job.

798 **Now employed,** giving good satisfaction; Age 26, married, experienced on wool, woolen and worsted yarns and piece goods, cotton and cotton yarns.

765 **All kinds of cotton goods** either yarns or piece, can take a position at short notice. A good overseer, age 50, married.

1031 **Dyer,** who has worked on raw stock, wool and shoddy and woolen yarns of all grades from fine worsteds down to low carpet yarns, piece goods, heavy woolens, desires position. Age 40, married. Has worked with one mill eight years and can give good references.

WOOLEN CARDERS.

1030 **Woolen Carder.** A first class man with good references and wide experience desires position as overseer of woolen carding. Has worked on from fine wool to low shoddy. Age 27. Married and can take position at once. A trial will show that he is the right man.

787 **Capable man.** Carder. 42 years old, married. Good experience and well recommended. Has worked on beavers, cassimeres, dress goods, all kinds of mixes and hosiery.

178 **Is the man** conservative mills are looking for; 38 with a family, desires pleasant town to settle down in. Excellent carder on wool or cotton and shoddy mixed dress goods.

913 **First class woolen carder** hosiery, dress goods, overcoatings, cloakings, cassimeres, (all wool and union), kerseys, meltons, etc. 35, married. $3.00 and up.

1051 **Has had 27 years' experience** in woolen mills. Has carded satinets, hosiery, flannels, cassimeres, shoddy and all sorts of stock and goods. Excellent references. Age 45, married. Salary not less than $3 per day.

1062 **Woolen Carder, who can also** be of service in the dyehouse, understands some dyeing. Has worked on carriage cloths, cassimeres, and cotton mixed goods. Is 37 years of age, married. Salary $3 00 per day. Will go on trial.

WOOLEN SPINNERS.

212 **First Class Overseer,** has worked on all classes of goods and in some of the most successful mills. Age 30; married.

980 **Wide experience** as boss spinner on variety of stocks: Johnson & Bassett, Davis & Furber, Woonsocket Mule, and the Wright Spinner. 45 years old, married; best of references. Salary moderate.

1017 **Boss spinner** on stock for cassimeres, beavers, cheviots, flannels and woolen shirting. Age 29, married. Wages $2 50.

941 **A Very Efficient Man.** Used to most every class of woolen goods; age 28, married. Salary moderate.

932 **Carder and spinner** in 3 to 5 set mill. Has worked on fine dress goods and cassimere stock. Age 29; married. Wages $3.00, or so

959 **Overseer of worsted Spinning.** Six years' experience. Has worked on all numbers. 26 years old, married. Salary $2.50 to $3 per day.

COTTON CARDERS.

645 **Coarse and fine,** colored and white. Brought up in good mills. Thoroughly understands all makes of machinery in his department.

826 **Has worked in best New England** mills; as second hand, and capable of taking an overseership in medium or small mill. Age 31.

922 **All kinds white or colored** from 1 2 to 14 hank. First-rate experience and references. Age 44, married. Salary $3 50.

978 **Overseer of Carding,** coarse and fine yarns and combings. Will work for $2.50 and upwards. 46 years old, married.

910 **Is a good carder** on plain, colored and fancy white stock. Age 41. $2.50 and up.

WOOLEN FINISHERS.

1041 **Woolen Finisher.** Has had experience on fancy and piece dyed goods, cassmeretes, cheviots, worsteds, kerseys and dress goods. Wants position as overseer or second hand in New England States. Age 26 years. Will work for $2 50 per day.

828 **Desires a position in finishing** room; as second hand preferred. Is bright, intelligent, and capable of an overseer's position, acquainted with flannels, fancy suitings, cassimeres, overcoatings, carriage cloth, fancy mixed beavers. Age 23.

832 **A young finisher** desires a position as overseer. Has worked on all wool cassimeres, suitings, dress goods and cloakings, worsted suitings, and cotton and worsteds, union cassimeres and low grade shoddy. Age 28; married. Salary $3.00 or so.

FINISHERS.

905 **Chinchillas.** Wants position in charge of finishing. Has knowledge of about 150 styles in this line. Age 32; married. Pay moderate.

843 **Boss Finisher** of 13 years' experience on all kinds of cut and fashioned shirts and drawers. Understands all kinds of machines used in same. 41 years old, married. Salary $3.00 per day.

1007 **Dress goods and fine meltons** prefered, but has worked on all kinds woolens. N. Y. or N. E. states. Age 22, salary moderate

358 **Heavy overcoatings,** beavers, chinchillas. Never held overseer's position, but second hand in fine mills. Would start low.

783 **Competent overseer** of wet and dry finishing. 46 years old, married. Has first-class recommendations. Many years experience on all classes of goods. Wishes to remain in New England. Fair salary.

734 **Woolen and worsted superintendent** and boss finisher. Has worked on broadcloth, flannels, carriage cloths, worsted coatings, dress goods, linings and cotton warps. Has had 20 years experience on mixes in mungo, shoddy, noils and cotton.

COTTON WEAVERS.

837 **Sheetings, twills, satteens,** fancy goods, and leno. Age 34, married.

949 **Overseer of Weaving,** or assistant superintendent. Experienced on sail and fancy duck, sheeting, shirting, drills, cottonades, etc. Will go anywhere. 50 years old, married. Wages $3 to $4 according to size of room.

1037 **Has 19 years experience** in cotton weaving. Can work all kinds of greys. Has good references, and is an excellent workman. Will go anywhere in the U. S. Is 35 years old and married. Salary depends on size of position.

KNITTERS.

1054 **Boss Knitter.** Has worked on hosiery in wool and cotton. 40 years old, married. Good references. Will work for $75 or $80 per month. Will also take a position as machinist.

1025 **Superintendent or Overseer of** Knitting. Has been boss knitter with one mill ever since it started, 12 years ago. Has had long experience, and can give good references. Married. 46 years of age.

1028 **Overseer of Knitting.** Has worked on cotton underwear and hose, and held position as second hand for over seven years. He is 27 years old and married. Is willing to start at $3 per day, with prospects of more.

773 **An experience** on all kinds of underwear and plush. A good man, 45 years old and married. Overseer's position anywhere except the South.

1024 **Overseer of Knitting.** Is at present employed, but desires to change. Has had over six years' experience on wool and cotton, heavy and light. Will accept any reasonable salary.

592 **Knit Goods Finisher.** Is desirous of obtaining a position as superintendent or overseer of finishing and seaming rooms, in a mill making knit goods on circular machines. Has had a long experience in manufacturing, and understands the business in all its branches. Age 42 years, married.

915 **Wants position as boss knitter** or superintendent in hosiery mill. 21 years old, unmarried, salary $3.00 and up.

MISCELLANEOUS.

1061 **Experienced on anything in** the cotton line, as overseer of spooling, warping and slashing. Has the best of references as to ability and character. Is an A1 man, and can make his department pay. Age 47 years, married. Will work for $3.00 to start with.

840 **Beaming or Charge of Beaming.** Has worked on ginghams, tickings, shirtings and dress goods. Age 29; married; salary as beamer $2.50; in charge $2.75.

927 **Boss Dresser Tender.** Five years overseer on stock for cassimere, flannels, worsteds, kerseys, beavers, dress goods and all other kinds of woolens.

928 **Foreman dyer and finisher** of knit goods. Very extended experience on all kinds of cotton, wool, and mixed goods, in hosiery, underwear, and overshirts.

972 **Situation wanted** by a man capable of taking charge of dressing in a woolen mill, or would run a frame. Has had six years experience. 23 years old, married.

998 **First-Class Sewing Machine Fixer** and Finisher in knitting mill. Has worked on all kinds of shirts and drawers. Furnishes best of references. 45 years old, married. Wages $2.50 to $3.50 per day.

533 **Situation wanted** as superintendent in flax, hemp or jute mill. Can make all kinds of yarn, threads, sail twines. Best of references as to character and ability. Twenty years experience in the same line, both wet and dry spinning.

800 **Office or cloth room,** thoroughly understands the cotton mill from this end. Desires pay master's or some like position; 26 years old; married, salary moderate.

771 **An excellent Supt.** for any woolen mill needing a man with his experience on cassimeres and dress goods. A good manager of help. Salary moderate.

760 **Desires advancement** in responsibility. Superintendent or Asst. superintendent and designer. Salary moderate; experience on fancy cassimers, cheviots and meltons. 31 and married.

809 **American, 24 years of age,** trained in foreign technical schools and mills; is practical in all branches of worsted yarn manufacture and is a good machinist. Desires position as overseer, assistant superintendent or superintendent.

934 **Ginghams, cotton dress goods,** shirtings, cotton and woolen, both fine and coarse, also cheviots. High up in his knowledge of these goods. Experience gained in Scotch mills. Is a practical dyer and finisher, and a practical designer. Desires a position as agent or superintendent, or as superintendent and designer. Age 42; married.

1008 **Wants boss job in flannel mill.** Northern New England preferred, also a good man for dresser or fixer, has worked on flannels, serges, cheviots, fancy dress goods. Is 34, married.

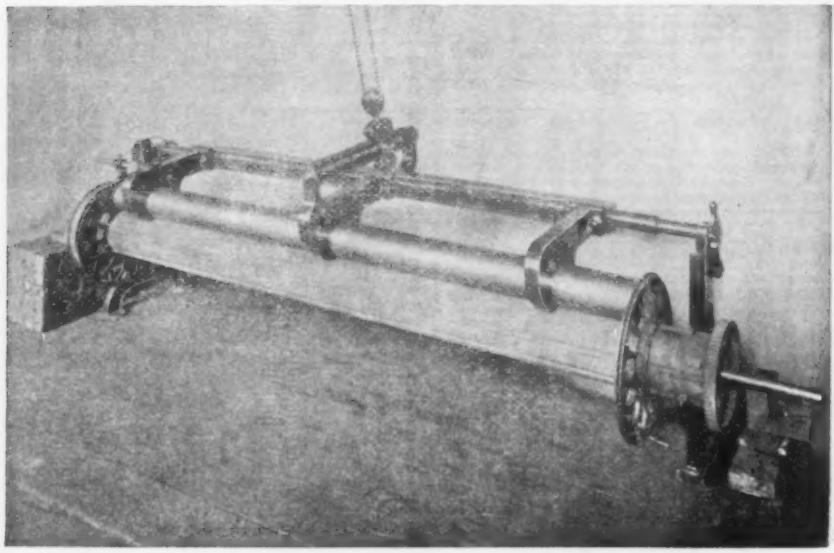
1038 **Master Machinist or Foreman.** Will give 30 days trial for expenses. Has experience on light and heavy goods repairs. Age 31 years, married. Salary $3.50 per day.

WORCESTER

WARP COMPRESSOR.

For Compressing Warps on Beams.

This new machine is the invention of a thoroughly practical manufacturer and actual experience in several prominent mills has proved the truth of the claims made for it.



Compression takes the place of Tension
ON THE WARP THREADS.

The Results Accomplished:

30 to 50 per cent. gain in the amount of yarn that can be put on the beam.
30 to 50 per cent. saving in drawing-in and in thrums, headings, etc.
No Broken Ends—No Section Streaks— No run-a-rounds.

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Better Cloth and Larger Production.

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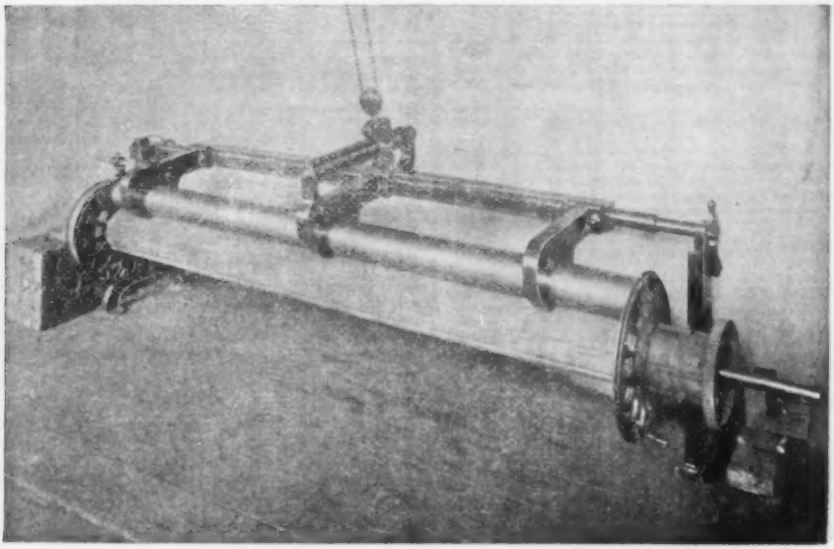

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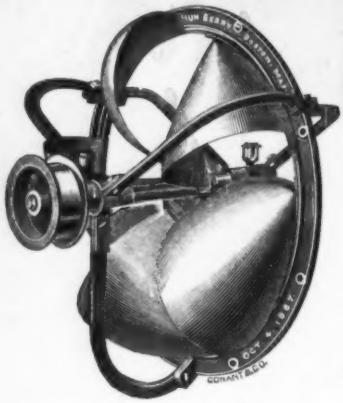

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